the magazine of STANDARDS

new era for fabrics . . . page 169

JUNE 1960

the magazine of STANDARDS

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

Vol. 31 No. 6 JUNE 1960

FEATURES

NEWS

DEPARTMENTS

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Ruth E. Mason, *Editor*
Margaret Lovely, *Art and Production Editor*

ASA

THE COVER: One of the tests of the performance of certain textiles (article page 169) is to check "dimensional restorability" after laundering. A sample is washed, dried, measured for shrinkage, then placed under tension in one of a number of ways to determine how nearly it can be restored to its original size. Here, a sample is being measured to determine the total amount of shrinkage before it is placed under tension. *Courtesy U.S. Testing Company, Inc.*

notes

• In his address opening the President's Conference on Occupational Safety, Vice-President Richard M. Nixon emphasized the importance of safety in keeping U.S. production at peak efficiency. Today, he said, "the United States outproduces the Soviet Union by over two to one." But, he commented, we can stay ahead only if we avoid inefficiency and negligence. Last year, he pointed out, the rate of accidents was the highest since 1953, resulting, in effect, in loss of the work of over half a million men and women workers for the whole year.

As shown in the articles on pages 164-168, standards have an important role in preventing unnecessary economic and personal loss.

• Lester O. Naylor, recently elected chairman of Sectional Committee L22, Textiles (page 169), refers to the new American Standard performance requirements for all types of textiles as a "truly significant achievement." He says: "Forming a set of standards covering the entire scope of apparel and home furnishing textiles has been a massive undertaking. It has required years of effort by a dedicated group of qualified competent people. The new set of standards will do much to promote quality, fair practices and satisfaction among manufacturers, retailers and consumers."

Lester O. Naylor

Mr Naylor is vice-president, soft lines divisional merchandise manager of Montgomery Ward, with headquarters in New York.

On completion of the L22 standards, George G. Sommaripa has retired from the ASA staff where he served as secretary of the Consumer Goods Standards Board. Recently, the chairman of the Board complimented Mr Sommaripa as "the man who with dogged perseverence kept this project from falling apart at the seams."

This Month's Standards Personality

William G. Waltermire

STANDARDS WORK is a particularly stimulating and enriching experience, says William G. Waltermire, chief product engineer, Lamson & Sessions Company, Cleveland. Mr Waltermire's chief activity is research, design, and development of new fasteners and redesign of present ones, but participation in standards activities of the industry, Government, and American Standards Association is an important part of his work. In these activities, he has won a well recognized place both nationally and internationally. His efforts as chairman of Subcommittee 6 of ASA Sectional Committee B18 resulted in development of a widely used plow bolt standard. And he guided the laboratory and field research on which the new proposed standard for class 5 interference fit threads, B1.12, is based. This standard is now before industry for trial and comment.

As a member of Sectional Committee B1, Screw Threads, he has represented the U.S. at meetings of the international committee on screw threads, ISO/TC 1, and will also be a leading figure in the ABC conferences being held at Ottawa, Canada, in June. He has helped develop the national viewpoints by speaking and writing on screw thread and gaging problems, locking threads, and strength of thread series.

Mr Waltermire is chairman of the ASME Standardization Committee, and a member of the SAE Screw Thread Committee and the Government's Interdepartmental Screw Thread Committee.

A member of the Administrative Committee of ASA's Company Member Conference, he is firmly interested, he reports, in stimulating understanding of the metric, inch, and a rudimentary reformed inch system of units and measures, and weighing the effect they have on current American Standards, ABC work, and ISO recommendations.

Engineers working on standards in ABC work and in the International Organization for Standardization demonstrate more dedication and competence than does the usual representative in national political bodies, in Mr Waltermire's opinion. It has been an honor, he says, to work with them.

Mr Waltermire graduated from the United States Naval Academy in 1929, and served seven years in the fleet. Before changing to industry, he served with the Cleveland Ordnance District of the Army, and was successively in charge of district inspection and of the Products Planning Division. Before joining the Lamson and Sessions Company 15 years ago, he served as staff engineer of the National Screw Machine Products Association.

He is a registered Professional Engineer in Ohio and a member of the National Society of Professional Engineers, the Standards Engineers Society, ASME, SAE, and ASTM.

As for hobbies—"I merely accompany my dog Stormy on his walks in the park which adjoins my home," he explains. He enjoys fishing, but, he says, "fish have little to fear from me."

Relationship Of Standards To Safety

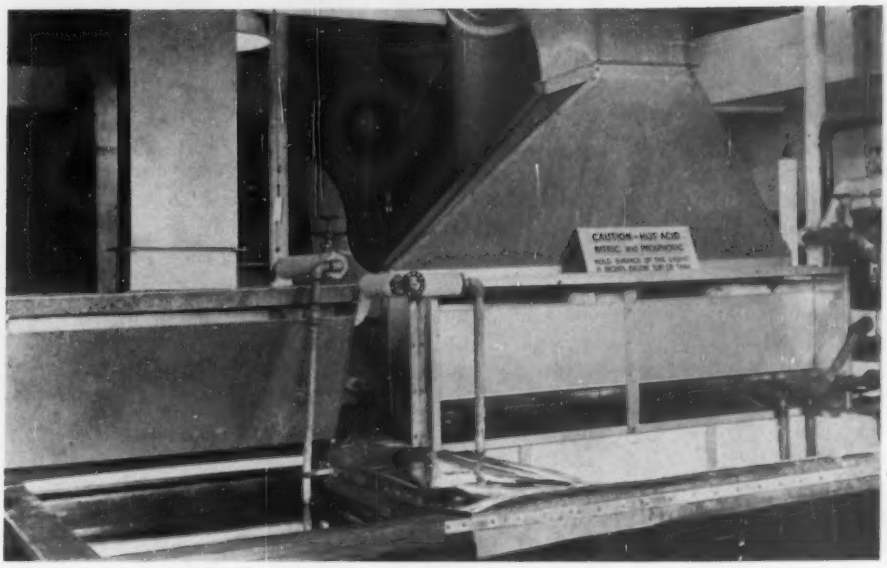
This paper is adapted from a talk given by Mr Townsend at the President's Conference on Occupational Safety, March 1-3, 1960. Mr Townsend spoke at the session on Setting Safety Standards for Tomorrow's Materials. Moderators of the panel were Cyril Ainsworth, deputy managing director, American Standards Association, and D. F. Hayes, chief, Safety and Fire Protection Division, U.S. Atomic Energy Commission, Washington, D.C. Other speakers on the panel were Merwin Brandon, president, Underwriters' Laboratories, Chicago, Ill.; N. L. Mochel, manager, Metallurgical Engineering, Westinghouse Electric Corporation, representing the American Society for Testing Materials; and Allen L. Cobb, director, Industrial Safety, Eastman Kodak Company, Kodak Park Works, Rochester, N.Y., representing the National Fire Protection Association. Mr Townsend, special assistant, Director of Research and Engineering, Department of Defense, Washington, D.C., is president of the American Standards Association.

Copies of all these papers have been made available by the Bureau of Labor Standards, U.S. Department of Labor, and can be obtained from the American Standards Association, without charge.

For a report on the results of the Conference, see page 166.

by JOHN R. TOWNSEND

Courtesy U.S. Forest Service, Forest Products Laboratory



Exhaust systems protect workmen from effects of toxic fumes and gases

A SAFETY STANDARD is not a mysterious document presided over by a remote priesthood. It is a valuable, commonsense guide and aid in the prevention of accidents. It is a rule of procedure to those seeking knowledge of ways and means of protecting people from injury or loss of life due to certain hazardous conditions.

Over the years, I have come to consider the body of standards, documentary factual standards, as a pathway through the forest of technology. Each new path enlarges our access to knowledge that we can use. The unrelated fact that a material breaks when a tension load of 1000 pounds per square inch is applied to it is in itself of no significance. But if we have knowledge of the tensile strengths of several thousand materials, under a variety of conditions, we begin to be in a position to use this information in the selective design of engineering structures. Standards are beginning to evolve.

If standards in general are a pathway through the forest of technology, safety standards can be regarded as a marked route through a minefield. With safety standards, the need for the information is associated with human life and safety. The importance of accuracy is vital. The penalties for failure to develop standards, failure to use the standards when they are developed, and failure to keep these standards up-to-date, can be very grave.

The American Standards Association was established in 1918, under the initial title of American Engineering Standards Committee. Five technical societies, including the American Society for Testing Materials, were the founding organizations. These invited the Departments of War, Navy, and Commerce to join with them as founders. From the outset, then, ASA was a joint governmental-industrial organization to facilitate development of engineering standards and to eliminate duplication and overlapping among the standards-forming bodies in the country. To these first objectives have been added the duties of promoting a knowledge and use of national standards, and serving as a clearinghouse of information on standards both within the United States and abroad.

JUST THREE MONTHS AFTER the American Standards Association was organized, a national conference was convened in Washington by the Bureau of Standards, chiefly at the request of the National Safety Council, to consider methods of developing industrial safety codes. The National Safety Council had made a survey of conditions existing in the country with respect to the multitudinous number of conflicting rules, regulations, and recommended practices issued by federal, state, and municipal regulatory authorities, insurance companies, trade associations, and technical societies. The situation was chaotic. Conferences with the Bureau of Standards led to the calling of the conference. The conference was attended by over 100 delegates, representing approximately 50 organizations and federal and state governmental bodies.

The discussion in the conference showed:

(*a*) Enthusiastic agreement as to the need for industrial safety codes.

(*b*) Unanimous agreement as to the need for such cooperation to gain the universal assent and recognition of regulatory bodies.

(*c*) Hearty appreciation of the generous offer of the Bureau of Standards to cooperate with the national associations in any manner that might be agreed upon by them.

(*d*) Vigorous opinions that, in order to enlist the hearty support of all concerned and to accord the maximum weight to the result, the development of and final action on safety codes and other

standards should be in the hands of a comprehensive representative body, including the appropriate government departments and bureaus.

The procedures of ASA seemed to meet with favor, except that the membership of the organization seemed too restricted for it to be considered a comprehensively representative body.

A committee was appointed to review plans and report to the conference by mail, the report to be accompanied by a ballot in order that those represented at the conference could vote to indicate their choice of plans outlined by the committee. The committee discussed with ASA the possibilities of enlarging the membership to make it representative, and agreement on this point was reached. Out of 85 votes cast by conference delegates, 60 voted for the use of ASA procedures for the development and approval of safety codes as American Standards. The principles and methods previously outlined were to be followed in the development of the standards.

Throughout the years, the basic principles and fundamental methods of operation have remained. It is to this firm adherence to those principles that ASA owes its strength and that American Standards owe their strength. The scrupulous attention to the basic principles has given to the operations of ASA a judicial character which is particularly important. The development of standards is left at the level of committees which are organized by the sponsors who shepherd their actions. The technical competence of the standard is thus assumed on the basis of the recommendation of the sponsor. The action by ASA becomes then an analysis of the method by which agreement was reached in order to insure that at all stages all parties at interest have had an opportunity to be represented and that a consensus in favor of the standard does in fact exist.

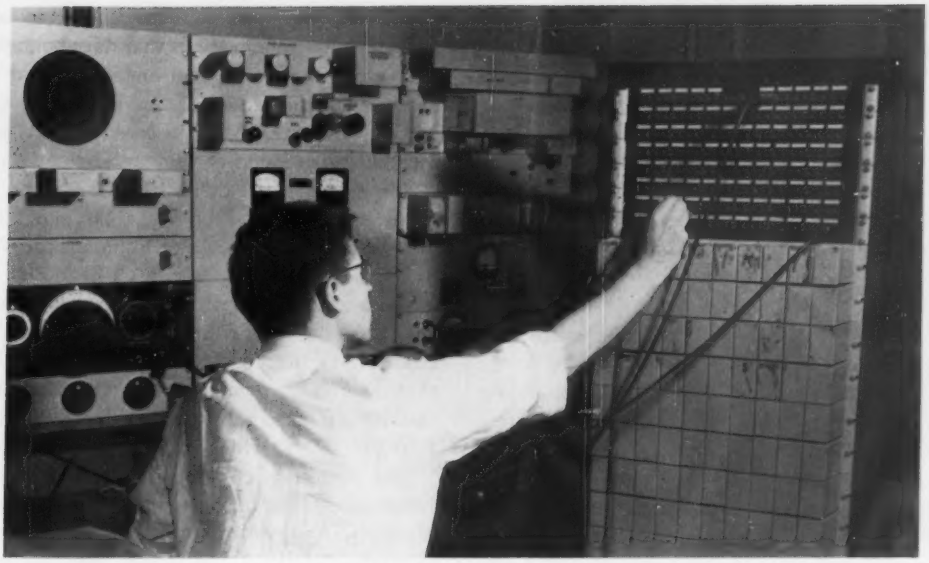
Safety goggles with plastic frames are one of the types approved for protection of workmen's eyes by the American Standard safety code. (Courtesy Eastman Kodak Co.)

The success of the safety standards program at the national level has been outstanding. More than 170 safety standards have been developed and approved to date. Most of these have been revised at least once, and many several times. Accident prevention requires the full cooperation of the parties concerned. The diligence with which ASA has maintained and applied the principles of voluntary cooperation has insured the success of the program and made it an outstanding feature of the accident prevention movement.

The chaotic situation which the National Safety Council found prior to 1929 in its survey of the conflicting rules and regulations of the states, and recommendations of insurance companies and trade associations, exists today only to a minor degree. Certainly, in 1920, no two state regulatory bodies agreed as to what should be prescribed for the removal of accident hazards. The Bureau of Labor Standards in its present study of state regulations as compared to American Standards is finding an excellent degree of harmony. The inquiries received by ASA from state agencies, when they are considering the development of new regulations or revising old regulations, clearly indicate an understanding of the value of using American Standards as the basis for regulatory work. The sale to industry of American Standards for safety is indicative of the value placed upon them as important technical documents. There are many indications that the decision to develop safety standards at the national level through use of the procedures of ASA, made by the 50 organizations and 100 delegates in the national conference held in Washington in January 1919, was a wise one.

IN THIS CHANGING WORLD, the future will demand even greater cooperation and coordination among those concerned with all phases of accident prevention activities than has been the case in the past. Standardization as a technique for cooperation and coordination, therefore, has a big part to play.

Advances in technology are introducing new methods, practices, and materials into manufacturing operations at a very rapid rate. Many will be hazardous in themselves, but can be used with safety to the advantage of all concerned when the safe methods are adequately prescribed. Standards will be essential to this purpose. Nuclear science is an excellent case in point. No one is saying that the use of nuclear energy should be prohibited. We are all agreed that its use should be controlled to eliminate the inherent hazards.



Research on acoustics contributes to the work of standards committees. This "basilar membrane network," designed by the Bell Telephone Laboratories, is used in studying what happens in the inner ear where pressure variations are converted into nerve impulses.

Because science and technology are moving ahead so rapidly, only the cooperative method of determining safe procedures will be able to keep pace.

Standards are not museum pieces. They do not prescribe the ultimate in protective methods. They must be revised from time to time to meet changing conditions so that they will never get out of date and will always be useful. ASA requires that all American Standards be reviewed at least once in every five years and revised, reaffirmed, or withdrawn. Let me present a brief summary of some examples:

Safety Code for the Construction, Care, and Use of Ladders.

The first standard in this field was approved in 1923 and revised in 1935. It included both wood and metal ladders, and all types and varieties of both portable and fixed ladders. In 1948, the code was revised again, but this time the standard was limited to portable wood ladders. Due to increased knowledge from tests of wood and the types and sizes of commercially available wood stock, this standard was revised in 1952 and again in 1959 to keep it up to date. In the meantime, lightweight portable metal ladders had become available and the first safety code for portable metal ladders was approved in 1956. Also, the subject of fixed ladders had become important enough so that a safety code for this type of ladder was developed and approved in 1956.

At the last National Safety Congress in Chicago, three distinct types of fiberglass ladders were displayed and offered for sale. It would seem that it is only a question of time when laminated wood ladders will become available. It will be highly important that acceptable standards be developed.

Safety Code for Protection of Head, Eyes, and Respiratory Organs.

Since the second World War, one completely new type of head protection, the insulated hard hat for electrical workers, has come into commercial production. In the field of eye protection, plastics are now being used, whereas, before the war, glass was used exclusively. In regard to respirators, there are not only new materials, but there are new hazards which require new respiratory protection for worker safety. Although the standard covering all these subjects was approved last year, many suggestions for review and revision of this standard have been made.

Acoustics.

Noise (sound) and its effect on human beings and its control is the subject of intensive research. A few years ago under a grant from the American Museum of Safety, Dr John Grimaldi, safety consultant, General Electric Company, made a study of the effect of noise on accident proneness. Copies of his report can be obtained by writing to the American Museum of Safety, 60 East 42nd Street, New York 17, New York. As late as 1954, experts said that they still did not have enough information to develop a standard. While studies continued, a report was issued making available existing information and outlining the needed information. Unquestionably, this information will become available and standard procedures for preventing hearing loss in industry will be developed.

These are three of the many examples that could be cited of the process of keeping safety standards up to date so that they can be of maximum usefulness.

The credit for this very valuable program does not rest with ASA. A major portion of the credit must go to the National Safety Council for the study it made

more than 40 years ago and which caused all concerned to recommend that the program be carried on under ASA procedures. In addition, the Council has not only participated very extensively in the development of safety standards, but has taken the administrative leadership for the formulation of many. The National Bureau of Standards must be recognized for its services as host for the conference held in 1919 and its leadership in the building of some of the most important of these standards. The United States Department of Labor must be praised for its very great support of the program. In the early days when no money was available in the ASA budget for publication and distribution of American Standards, the Department published them and made them available at five cents a copy, giving hundreds of them to ASA for free distribution for promotion purposes. More recently, its studies of state regulations have furnished information to national committees concerning the need for strengthening provisions of the standards they have developed. The casualty insurance industry backed the program from the very beginning, not only administratively and technically, but also financially.

To name the many industrial, labor, governmental, and technical organizations that have contributed their support, time, energy, and finances would fill a book bigger than the record of this President's Conference on Occupational Safety. We in ASA can therefore only ask that this session of the conference join with it in saying to all "well done." The American Standards Association assures everyone of its desire to assist in meeting "The Challenge of Standardization in Safety in a Changing World."

We are not engaged in a specialized, institutionalized program apart from the main stream of American culture. We are concerned with applying the talents that distinguish man from the rest of nature—his reason, his ability to record data, his ability to organize—to man's safety, which is the stuff of life itself.

Our American culture is a dynamic one. We embrace all sorts of risky enterprises. Our technology is a history of the invention of new dangers and of their mastery—electricity, the automobile, the airplane, the atom, and now space. The challenge is to preserve a national culture that will forever be able to surmount new dangers as they arise.

THE PRESIDENT'S CONFERENCE ON OCCUPATIONAL SAFETY

THE CHALLENGE of Safety in a Changing World was the theme of the President's Conference on Occupational Safety, 1960, held March 1-3 in Washington, D.C. Speakers at the sessions and participants in the eight workshops discussed industry's safety problems and made recommendations, indicated briefly below.

The Challenge to Schools for Safety—A national steering committee under Office of Education auspices should promote school-shop safety programs at state and local levels, this group recommended. Continuing research on school safety is needed.

New Emphases in Training—Safety training should be considered equal in importance to other phases of job training, this workshop pointed out.

Emerging Environmental Hazards—Noise, chemicals, and radiation were found by this group to be the three major environmental hazards in our accelerating technology. Interim noise standards have already been proposed. On chemicals, new toxicity studies are needed, as well as diagnostic techniques to detect changes in man before permanent damage occurs, and better labeling of chemical products to alert users to the hazards. In radiation, personnel trained in control of harmful exposures and a study of radioactive waste disposal are needed.

Little Known Facts About Injury Occurrence—Safety programs should be developed for establishments with less than 500 employees and for certain activities such as those involving strenuous physical effort. Traditional patterns in accident-sensitive industries should not be used to excuse poor safety performance, the workshop agreed.

Wanted! Leaders for Safety—Sustained safety leadership is essential in order to lower present accident rates. Safety programs should be expanded by schools and other community agencies. The idea of safety should be expanded to a "total safety concept," embracing all segments of safety, the group declared.

Communication, a Bridge for Safety—A "multiple media" approach was recommended, including publicity through safety meetings, slogans, house organs, committees, posters, and man-to-man discussion.

Why, and How, to Investigate Accidents—Investigation of accidents, an aid in accident prevention, should be made quickly after the event has occurred and by persons familiar with the work, the work practices, and the equipment involved. Investigation of nondisabling accidents and "near misses" as well as off-the-job accidents also helps in prevention, the workshop agreed.

Health Maintenance, Its Contribution to Job Safety—Medicine and engineering should combine forces and extend research into man's behavior and relation to his occupational environment, the group recommended.

Standards for Tomorrow's Materials—(see page 164). Existing standardizing agencies are equipped to meet the challenge of the future, the workshop agreed. Changes in workers' skills, in machines, and in processes, and development of new materials call for greater use of standards and for new standards. More emphasis should be placed on basic principles of accident prevention and on building into new machines the safety made available through the technical information contained in standards. Standards must be maintained in the most acceptable and useful form, the group pointed out.

A New Era for Fabrics

The amount of pressure that bursts or ruptures a fabric is measured with this bursting strength tester.

Above: The shade of a fabric may be changed by atmospheric gases. This gas chamber is used to measure the resistance of a fabric to shade alteration.

American Standards L22, Textiles, make it possible to give users information on the service to expect from 75 classes of fabrics for men's and women's clothing, and for home furnishings.

ORLON, DACRON, NYLON, wash and wear, drip dry—these are only a few of the terms a woman finds on tags and in advertising when she looks for clothes for herself and her family, or for fabrics for her house. Despite tags that identify fabrics by name and make special claims of certain performance characteristics, what the names mean in terms of how the fabric will wear, or how it will react to water, perspiration, or light is something very few home buyers are sure they really know.

Will this beautiful slip-cover material wash well? Will this drapery material hold its color when exposed to the sun? Will a bathing suit shrink—or will its wearer be subjected to the humiliating experience reported in the news recently when a young lady

Right: The dry cleaning drum simulates the action of a commercial dry cleaning process and is used in checking a fabric's resistance to shrinkage. The flat bed press shown here is used to press shrinkage test specimens without tension, a step necessary for accurate measurements in shrinkage tests. (All photos courtesy United States Testing Co.)

Left: A fabric shift tester is being used here to determine how well a fabric resists distortion of weave when subjected to rubbing action.

Below: Fabrics are here being checked to determine their resistance to shade alteration and staining during laundering.

found her expensive bathing suit became transparent when wet? Will dress fabrics change color when exposed to gases in the air? Will a fabric actually drip dry without need of ironing—or will the drip dry finish disappear after the first washing?

These are some of the questions that fabric buyers must answer every day, with little knowledge or experience to guide them.

A start was made several years ago toward solving this problem. Retailers, manufacturers, and representatives of home buyers agreed on performance requirements for rayon and acetate, and their combinations, for the different uses to which these fabrics may be put. These American Standards were known as L22. Converters who have used them report that not a yard of fabric conforming to the standard performance requirements was the cause of a single return, claim, or complaint. In view of the thousands of dollars lost to retailers and manufacturers because of goods returned for unsatisfactory performance, this represents an impressive saving.

The L22 standards have now been extended to all textiles. A pioneering job, requiring many hours of work, provides serviceability standards for 75 different classes of fabrics, now available in a 1960 edition of the L22 standards, just published. The 75 classes of fabrics are determined by the purpose for which the fabrics are used.

This new group of standards was developed by a committee sponsored by the National Retail Merchants Association, under the procedures of the American Standards Association, and approved by ASA as American Standard.

Stores Magazine, published by NRMA, hails completion of the L22 standards as "an historic endeavor in voluntary inter-trade cooperation," and declares

that their use can mean the same trouble-free experience with the whole range of fabric merchandise as was experienced with use of L22 rayon and acetate standards.

"We retailers are presumed to be the merchandising agent of the consumer," says Lester O. Naylor, vice-president of Montgomery Ward & Company, and chairman of the L22 committee. "Yet from the president of a store down through the buyers and salespeople, I doubt whether any of them, and I certainly include myself—can list all the different characteristics which enter into the making of acceptable, serviceable fabrics. That need has been answered by American Standard L22, Textiles. It is an immense accomplishment."

The National Retail Merchants Association (then the National Retail Dry Goods Association) asked the American Standards Association for development of

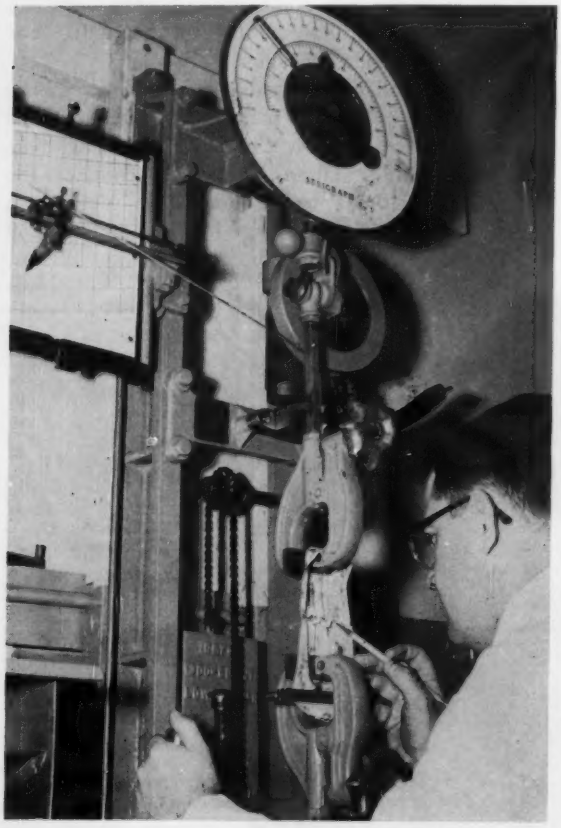
INFORMATION FOR USE ON SEWN-IN OR PERMANENT LABELS

Identification	Letter Code for Refreshing Articles	Color Code Strip Recommended as Supplement to Care Instructions
AS–L22		
AS–L22–B	B–Washable at 160 F, with Bleach	Purple
AS–L22–W	W–Washable at 160 F, No Bleach	Green
AS–L22–C	C–Washable at 120 F, No Bleach	Blue
AS–L22–H	H–Washable at 105 F, No Bleach	Yellow
AS–L22–D	D–Drycleanable Only	Red

standards in 1948. What prompted the request, Mr Naylor explains, "was the increasing number of complaints its members were getting from customers regarding the washability, launderability, and dry cleanability of garments they had purchased."

At present, Mr Naylor estimates, there are more than 1,000 different textile finishes that claim certain distinct characteristics. They are grouped into basic categories by the L22 standards. These include wrinkle or crease resistance, moth resistance, crease or pleat retention, resistance to mildew, wash and wear, resistance to spotting and staining, fire resistance, antistatic qualities, and colorfastness.

Measuring the strength of fabrics and seams. This tester is also used to determine the elongation properties of fabrics.



FOUR WASHING FORMULAS are provided based on test methods[1] designed to evaluate the washfastness of textiles that will be laundered frequently. For example, woven fabrics for use in men's overalls or dungarees may be of three grades. One may meet the requirements of a washing test at 160 F, with bleach added. The second may be washed at 160 F but without bleach. The third may be washed at 120 F without bleach. The requirements for breaking strength, resistance to yarn slippage, shrinkage, colorfastness, and resistance to perspiration and light remain the same for all three, but some fabrics that meet the requirements when washed at 120 F without bleach will not meet the same requirements when washed at 160 F with bleach.

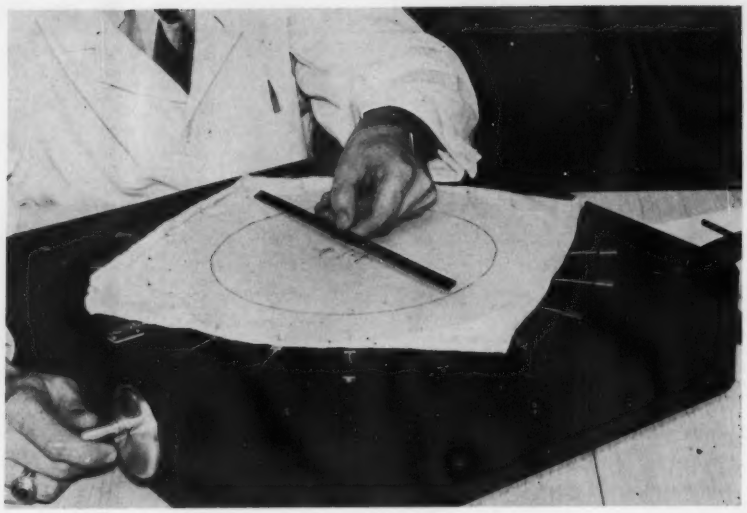
Requirements for tags to identify these three grades of fabric are also provided. The fabric that meets the performance requirements when washed at 160 F with bleach would be marked A.S. L22B. The fabric meeting the requirements when washed at 160 F without bleach would be marked A.S. L22W; and the fabric washed at 120 F without bleach would be marked A.S. L22C.

The performance requirements, which vary with the fabric and its intended use, include breaking and bursting strength, shrinkage, colorfastness to different elements, the way the fabric retains its "hand" or feel and its appearance after it has been refreshed, and other characteristics considered necessary for the particular end-use.

The six parts in the new L22 standards provide performance requirements for fabrics for women's and girls' garments in 38 categories; 22 items of men's and boys' garments; home-furnishing fabrics; special characteristics and finishes; permanent labels for fabrics meeting the standard requirements; and a list of the nationally recognized testing procedures to be used by all laboratories that will check the performance of fabrics under these standards.

The section on labeling includes a five-color code

[1] Test methods are those of the American Society for Testing Materials, the American Association of Textile Chemists and Colorists, the Textile Distributors Institute, and the U.S. Department of Commerce, as well as Federal Specifications and tests of individual companies, namely, the American Viscose Corporation and the U.S. Testing Company.



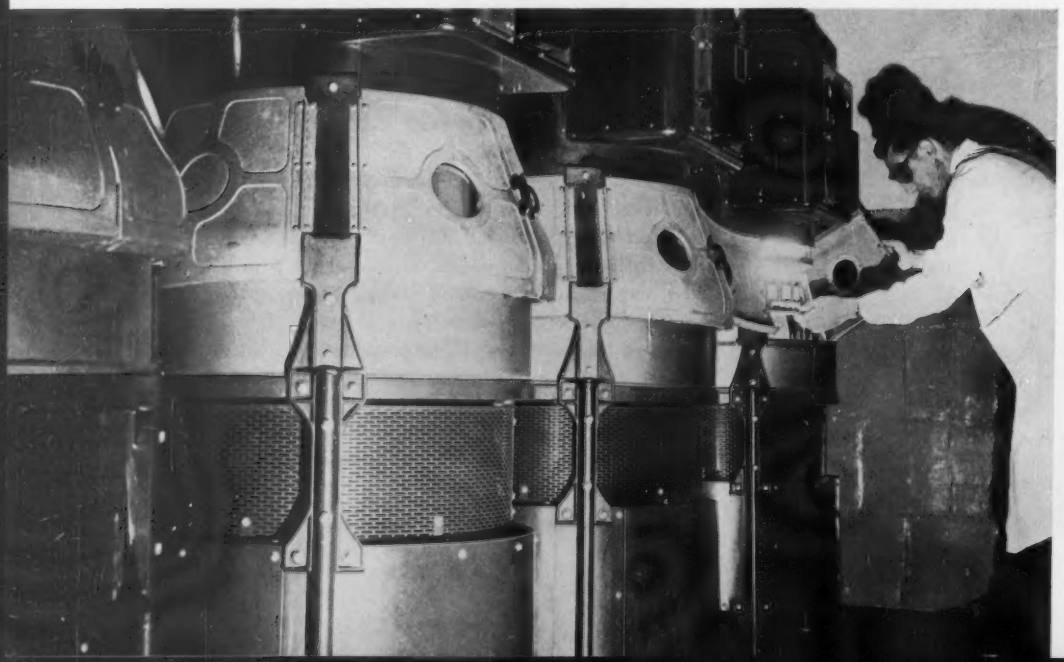
The total shrinkage and the "dimensional restorability" of knitted goods can be measured by using this "knit shrinkage gage."

for permanent tags that will identify the degree of fastness to washing as a help to the consumer and also to the cleaning service employees. This section also outlines a method by which a scheme of certification may be set up by an accredited laboratory.

This standardization of textiles has been brought about by voluntary cooperation of practically all segments of the industry, unlike foods and drugs, insecticides, and certain other consumer goods which have been standardized by government edict, points out Ephraim Freedman, director of the Bureau of Standards of R. H. Macy, New York. Mr Freedman is chairman of the NRMA Technical Committee, and chairman of ASA's Consumer Goods Standards Board. Now it is up to the retailers to encourage the use of the standards, and insist to the vendors that they identify their merchandise in compliance with the standards, Mr Freedman declares.

"To a very large extent what we are talking about in presenting these minimum end-use standards is the adoption of a common performance language," points out Jackson E. Spears, vice-president, Burlington Industries, Inc, and vice-chairman of the L22 committee. "We want to clarify our terms and speed up meaningful communication between producers and users. If our great stores will adopt and utilize these minimum end-use standards in the procurement of merchandise, they will contribute to orderly marketing and help all at every stage along the chain of production and distribution. Although these are minimum end-use standards, the probable result will be to encourage some general broad grading up. In the final analysis, this is good for our market and for our consumers."

The L22 standards are published in two volumes. Volume I contains the performance requirements themselves, each being a separate standard with its own identifying number. Volume II contains the textile test methods to be used with Volume I. Prices (prepaid): $4 per copy for Volume I; $2.50 for Volume II; $6.00 for the set.



Whether a fabric fades in sunlight can be measured by subjecting samples to simulated sunlight under controlled conditions in a Fade-O-meter.

SOVIET METROLOGY

STANDARDIZATION, automation, and improved measuring techniques rate as important steps in the Soviet Union's plans for development of the national economy in the next seven years. This was indicated in a paper entitled "Development Problems in the Field of Measuring Techniques, 1959-65," translated and published by the Instrument Society of America in its Soviet Instrumentation and Control Translation Series.[1] The paper comments on the draft of N. S. Krushchev's address as approved for presentation to the 21st Congress of the Communist Party of the Soviet Union.

"The seven-year period lying ahead," Krushchev is reported as saying, "will be marked by technical progress in all branches of the national economy. This is ensured, above all, by the development in this country of the mechanical engineering industry and, in particular, of the construction of machine tools, the instrument industry, electronics, electrical engineering; of the construction of new and more up-to-date equipment for the metallurgical, chemical, petroleum and gas industries; the development of the production of polymers, the further expansion of the application of atomic energy for peaceful purposes."

Commenting on this, the paper says, in part:

"The ever increasing development of automatic lines, departments, and complete plants presents new, serious demands to both the metrology and the instrument industry. Therefore the massive development of the national economy provided for in the plan must be accompanied by corresponding progress in the field of measuring techniques.

"It is planned to produce 2.5—2.6 times more control equipment in 1965 than in 1958. The increase in the output of measuring equipment should not be smaller. The production capacity of the instrument industry will be considerably increased by the construction of new plants and the reconstruction of existing plants.

"It is intended to increase considerably the nomenclature of devices for measuring quantities involved in heat and power production, devices for determining the properties and compositions of substances, devices for electronic and radio-technical measurements, dosing equipment, etc. Provision of the necessary basis for the increase in the amount of measuring equipment used in industry is the task of the scientific research institutions, design bureaus, and the entire instrument-making industry.

"The scientific work of the metrological institutes grows from year to year. In 1958, prototypes of new measuring devices, plants, and methods were developed.

"The schedule of the scientific research institutions of the Commission of Standards, Measures, and Measuring Devices for 1959-65 includes 101 large scientific research problems. As a result of their solution, the national economy will receive several hundreds of measures, measuring devices, plants, and methods.

"A considerable amount of development work is planned in the field of thermal, optical, radio-electrical, magnetic and acoustic measurements, and also in the fields of measuring super-high pressures and ionizing radiation (electron, x-ray, beta- and gamma-radiation). Standard and master instruments will be developed with the object of expanding the range and increasing the accuracy of measurements in these fields and also in the fields of force, angular velocity, acceleration, and measurements of short periods of time.

"The lagging-behind of metrological science and engineering in the fields of gas analysis, measurement of large discharges of liquids and gases, and temperatures close to absolute zero, and also in the development of theoretical problems of metrology must be overcome.

"In the Seven-Year Plan of the scientific research

[1] The Soviet Instrumentation and Control Translation Series, published by the Instrument Society of America under a grant from the National Science Foundation, now includes cover-to-cover translations of four important Soviet instrumentation and control journals. They are: *Automation and Remote Control, Instruments and Experimental Techniques, Measurement Techniques,* and *Industrial Laboratory.* The paper quoted here was published in *Measurement Techniques* (Soviet Instrumentation and Control Translation Series), No. 1, January 1959, pp 1, 2, and 3. The translation of the journal *Measurement Techniques* and its publication is made possible by an additional grant to ISA from the National Bureau of Standards. Translations of any one of these journals, or all of them, are available at subscription rates which, the Instrument Society of America explains, have been kept low to encourage wide distribution. Additional information can be obtained by writing ISA, Foreign Translations Department, 313 Sixth Avenue, Pittsburgh 22, Pa.

work in the field of metrology, it is intended to devote much attention to the problems of automation of measurement and control of finished components and articles, and their automatic inspection during the manufacturing process.

"In order to provide the basis for the development of automation it is also necessary to carry out standardization of types, parameter ranges, dimensions of connections, technical requirements, and methods of testing of the principal means of automatic control and regulation.

"Automation of measuring processes is one of the most effective means of increasing the productivity of labor in inspection work. However, until now, the automation of processes in the inspection of measures and devices has been extremely slow. For the seven-year period ahead of us a considerable amount of work has been scheduled in this direction; methods of automatically recording the indications of precision balances must be developed, and automation of some linear, heat, and electrical measurements carried out.

"One of the most important conditions for development of the engineering industry is design and construction of machines and devices based on utilization of the latest achievements and discoveries of science and technology and especially of electronics, super-conductivity, ultrasonics, radioactive isotopes, semiconductors, nuclear energy, etc. This leads to the need for utilizing the latest achievements of science and technology in development of measuring techniques and construction of the most up-to-date measuring devices and plants. Much work will be carried out in this direction in the next few years: development of new standards for magnetic units, by using the phenomena occurring inside the atom, by using semiconductors for temperature measurements, and by using radiation for linear and temperature measurements, etc. Development of work of this type is one of the most important problems in improving measuring techniques.

"Problems of the utmost importance must be solved in standardization of measuring methods. They include, above all, standardization of electronic measuring devices, devices for measuring ionizing radiation, equipment for spectral, photometric, and colorimetric analysis. Standardization of equipment for linear, mechanical, heat, and electrical measurements must be continued.

"The rapid development of the instrument industry and the greatly increasing production of new measuring control devices place upon the metrological scientific research institutes, and the state test laboratories dealing with this subject, the very important task of organizing official attesting and inspection of measures and measuring devices. It must be ensured that the equipment made is of high quality and has the required precision and measuring ranges, and stability and reliability in operation.

"In view of the fact that for 1959-65 a considerable increase is scheduled in the total number of measures and devices in daily use, and an improvement in average quality due to the adoption of more up-to-date and complicated measuring devices, the local branches of the Commission and the departmental inspection organizations are faced with great problems involved in the maintenance of measuring equipment used for the national economy and in an improved management of this equipment.

"It is the task of the local branches of the Commission to ensure that the increased demands of enterprises and organizations concerning the inspection of measures and devices are met; they must give the necessary help in all questions concerning measuring equipment and become real centers of the organization, providing technical advice on everything concerned with measurements. In this connection it is necessary to develop work in the new fields of measurement (acoustical, dosing, light, etc) and widen the range and improve the precision of measurements in the regions in which many laboratories already work.

"Reorganization of the control of industry, carried out in accordance with the decisions of the Communist Party and the Soviet Government, has created exceptionally favorable conditions for improving the quality of the measuring equipment used in industry, for development of the work of official institutions entrusted with the supervision of measures and devices, and for organization of up-to-date facilities for the repair of instruments. The departmental inspection offices must solve the problems connected with introduction of the new measuring equipment, provide for the continuous accuracy of measures and devices used in their inspection, and improve the handling and increase the service life of measuring devices.

"N. S. Krushchev's address stresses that the development of the eastern region of the country must be speeded up. The new distribution of the productive forces of the country dictates the need for a corresponding location of metrological centers. At present the principal metrological centers, the institutes, are concentrated in the European part of the USSR. In 1959 a new center for standard measures will be opened in Novosibirsk, and in 1960 a new block will be put into use at the Sverdlovsk branch of the All-Union Scientific Research Institute of Metrology. This will considerably improve the metrological facilities of the economy of the eastern regions. However, in order to improve this service still further, several central laboratories must be established in Central Asia and in the Far East."

Wire Rope For Mines

Inspecting a 1⅞-in. diameter wire rope in the hoist house of a mine. Rope is engaged in shaft hoist service. (Courtesy Bethlehem Steel Company.)

by A. J. MORGAN

SHORTLY AFTER 1920, it was realized that wire rope was becoming an ever increasing factor in our country's economy. It was making possible machinery of new designs and increasingly larger capacities. It was also assisting in the recovery of minerals from greater and greater depths.

The Bureau of Standards recognized this development and further realized, as a result of experiences in World War I, that wire rope was a particularly important and very necessary product in protecting our country. The Bureau entered into a study of the problem, and the result was the United States Government Master Specification for Wire Rope, No. 297. This later became Federal Specification RR-R-571. Revisions of this were finally consolidated and a new Specification RR-R-571a was issued. There is a further revision at present in the works, namely, Federal Specification RR-W-410a. The particular point here is that the government found it necessary to make a number of revisions to keep their specification current.

Shortly after the first government specification was issued, a technical committee was organized under the leadership of the American Mining Congress which made a study of the application of wire rope for mines. This work was finally approved by the American Standards Association and issued on February 24, 1927, as American Standard Wire Rope for Mines, M11-1927. Unfortunately, this standard was not three years old when the rope tables became obsolete; then other developments occurred which called for revisions in the text. A continuing committee was set up in 1927; however, for some reason it never became active, and no further study of the M11 specification was made until some thirty years later.

In the interim, some states found it advisable to set up rules and regulations for mines and certain supplies used by them. Wire rope was one of those supplies. Since there was an American Standard, namely M11, covering wire rope for mines, it was only logical that this publication should be quoted and made the basis for certain rules and regulations. This would have been very good if the M11 standard quoted had been kept up to date. As could be anticipated, the result was confusing, and in some cases it was difficult to reconcile the requirements of the laws with the actual products available. This problem can be met by keeping the M11 publication current.

A revised American Standard Wire Rope for Mines, M11.1-1960, has now been approved and copies are available at $3.00. This standard is as up to date as it is possible to make any publication of this nature, but there is no guarantee as to how long it will so continue. It is, therefore, important that an active, continuing committee be set up to make the necessary studies and recommendations for revisions so that this standard can be truly representative of the best current practice and materials.

The revised M11 brings the rope tables up to date. It brings out pertinent and helpful information on installation and maintenance of wire rope for mines. It gives types of attachments. It sets forth data and suggestions which will allow practical and useful rules for inspection and rope removal to be formulated. There are design formulas. In short, it shows a great number of useful data and much usable information on the characteristics of wire rope, the design of installations using wire rope, and the maintenance and removal of wire rope from such installations.

This publication can be of real service to states and organizations which are particularly interested in the safe installation and use of wire rope. American Standard M11.1-1960, Specification for and Use of Wire Rope for Mines, can furnish a very broad and authoritative basis for laws covering the use and operation of wire rope, as well as for the mine owner and operator in its procurement, use, and maintenance.

This is the thirty-first installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954 (Reaffirmed 1959). The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. Decisions on unusual industrial injury cases are issued periodically by the Z16 Committee on Interpretations.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

INDEX TO CASES 400-700. An index to Cases 400-700 has now been completed. Arranged numerically by the number of the applicable paragraph of American Standard Z16.1-1954 (R1959), the index includes the number of the case indexed and a key letter indicating what the decision was in each case. Each index reference includes a brief description of the case.

Reprints of Cases 400-700, with the index, are now available from ASA at $2.25. Discounts for quantity orders may be obtained on request.

Are These Cases Work Injuries?

CASE 775 (5.2)

A rigger with a history of back trouble dating back for more than ten years was standing on the floor, lifting a coil of ½-in. twisted cable off a hook. The cable weighed 28 lb, and the hook was 7 ft 2 in. from the floor. As he twisted his body to place the cable on his shoulder, the man felt a sharp pain in the lumbar region of his back. He reported to the plant nurse and was referred to the doctor for x-rays. The man was away from work for one week due to the painful, lame area in the lumbar region of his back.

Decision: This should be considered an industrial injury and included in the work injury rates. The committee felt that the overhead lifting of the coiled cable, coupled with the body twist to place the cable on the employee's shoulder, satisfied paragraph 5.2 (a). In the absence of a contrary opinion from the company doctor, the committee presumed that the injury could have arisen out of the incident.

CASE 776 (5.3)

On his regular days off, an employee was assisting another member of his family to replace a house foundation. While he was picking up a rock, an old sewing needle penetrated his hand. During the removal of the needle, a section of the pointed end broke off in the man's hand. A month later, during his regular work, while he was using a shovel, his hand became infected. Subsequent surgery was necessary to remove the broken end of the needle, and considerable loss of time resulted from this incident. The doctor who treated the case stated that the type of work performed by the employee had aggravated the original injury.

Decision: This injury should be considered a temporary total disability, and should be included in the work injury rates in accordance with the ultimate extent of disability. Because of the doctor's statement that the employee's work activity aggravated the earlier injury (even though the earlier injury was nonoccupational), this case is covered by paragraph 5.3.

CASE 777 (5.4)

An employee returning to his work area from outside a rolling mill building entered the building using the regular walkway. As he reached the middle of the building, he stumbled and fell forward, striking a fixed skid adjacent to the walkway with his right knee. The man sustained a contusion with 1-in. laceration of the right knee and transverse fracture of the kneecap with separation of fragments (three sutures).

The injured man normally walked with a shuffling step, and stated that he had stumbled over his own feet which caused him to fall; he did not trip over an obstruction in his path. The walkway was clean, illumination good, and the area was free of any tripping or slipping hazards.

Decision: This injury should be considered industrial and included in the work injury rates in accordance with the actual time lost. The employee had fallen against a skid adjacent to the walkway, and this contact with the skid inflicted the injury. The fact that the employee walked with a shuffling step may have been a contributing factor in the accident, but it was not reason to change the classification to a non-work accident.

CASE 778 (1.2.4 and 5.15)

On the 12 to 8 A.M. shift, an employee's regular assignment was to change supply spools on a 100-wire electrotinning machine. To remove remnant copper wire from supply spools was a normal part of this job. He was furnished a ball peen hammer and a 1-in. cold chisel to chop off the remaining convolutions of wire

while removing remnants. As he struck a blow to the chisel, a chip of steel flew off the chisel head and imbedded itself in his left forearm. The incident was reported to his supervisor, and he was sent to first aid. He was treated for a puncture wound in his left forearm, and was instructed to see the plant doctor when he came in about three hours later. The man returned to his job, and later the plant doctor x-rayed the arm and reported "metallic foreign body (steel chip) approximately 1 in. from point of entry proximally left forearm."

The employee did not wish to be treated by the company doctor, but preferred to see his family physician who later in the day examined both the x-rays and the employee, and suggested leaving the foreign body where it was until such time as it would become bothersome. The employee agreed and went home, reporting to work normally for most of the next two weeks. Then he reported to his doctor that he would like to have the foreign body removed. It was arranged for him to enter a hospital on a Monday evening, and to have the foreign body removed the following morning. In the interest of avoiding lost time on this case, and to provide maximum after-care to the employee, the man's shift was changed. The employee worked Monday on his regular shift, and left the plant agreeable to returning to work after the operation on Tuesday to a light work assignment on the 4 to 12 P.M. shift of that day.

At the hospital, surgical activity in the operating room prevented the employee from entering until later than expected, and locating x-rays and the operation itself took over an hour. When the company benefit representative went to the hospital that evening to escort the employee back to the plant, the doctor was not available to give the necessary release to the hospital. By the time he was reached, the employee had become nauseated and somewhat dizzy, and the doctor decided not to release him, but to keep him at the hospital overnight.

The following day the employee reported to work on the 4 to 12 shift where he worked on a light work assignment, and within a week or ten days he was working on his regular shift with a decrease in his restrictions.

The company questioned whether this lost time should be included in the rates in view of the fact it had not been due directly to the injury, but rather to the hospital delays.

Decision: This lost time should be considered as time lost from an industrial injury, and the case should be included in the work injury rates as a temporary total disability on the basis that the operation was necessitated by the injury, and disability following the operation must be attributed to the injury.

CASE 779 (1.6)

Upon returning to his work base in the dispatching pump house, a gauger mentioned to his fellow workers that two non-company trucks had collided in another part of the plant, and that the damaged vehicles could be seen from a position across the road from the pump house overlooking the part of the plant where the accident had taken place. This was at a lower elevation, and about 200 yards down the road.

To satisfy their curiosity, several workmen left their place of work in the pump house, went across the road, and in order to get a better view of the scene below, stood on a low mound of loose sand and gravel paralleling the road. The gravel had been excavated to allow the installation of forms for a concrete retaining wall. While in this position, one of the gaugers lost his balance when the gravel gave way under his feet. He fell forward and struck his chest against the wooden form work. He was hospitalized with three broken ribs.

Decision: The incident described should be considered a temporary total disability, and should be included in the work injury rates. The employee leaving his work to view an accident was a normal human occurrence, and would not be considered as having taken him out of his employment. He was still on company property when this accident happened.

CASE 780 (2.3.1.2)

An employee sustained an injury to his eye which caused 99.5 percent of his vision to be lost to him. However, with corrective lenses his vision was restored to 40 percent of normal. The company asked whether to charge its severity rate for this injury with 1791 days (99.5 percent of the scheduled charge for the loss of sight in one eye) or 1080 days (60 percent of the full charge when corrective lenses were used).

Decision: The time charge for this injury should be 1791 days, the evaluation of partial loss of vision of the employee when his vision was uncorrected by the use of glasses. Paragraph 2.3.1.2. is specific when stating that the charge for the loss of use shall be a percentage of the scheduled charges, corresponding to the percentage loss of use of the member or part of member involved. The reference is strictly to the member, no indication being given that the loss rating should include consideration of a mechanical device which would improve function.

CASE 781 (1.6 and 5.12)

A building contractor was erecting a new building on the grounds of an operating paper manufacturing plant where it was quite normal to unload chlorine tank cars. About 150 feet away from the new construction project, chlorine was being piped from a tank car into an existing building. A break occurred in the line, and large quantities of chlorine gas escaped into the surrounding buildings and atmosphere.

The building under construction was at a lower level than the break in the line, and the gas flowed directly into and around it. As the gas entered the building, the construction workers began to flee the building. In doing so, many of them ran out a low-level entrance directly in line with the source of the gas, thereby entering its full flow. Several employees of the contractor and his subcontractors were overcome by the gas.

Decision: These cases should be considered as work injuries arising out of and in the course of employment, and should be included in the work injury rates. The Committee on Interpretations believed that this situation was covered by paragraph 1.6, and the cases could not be excluded under the provisions of paragraph 5.12.

CASE 782 (1.6 and 5.12)

The "A" Textile Company, as a tenant, occupied one of the upper floors of a "tenant-factory" building. The "B" Textile Company, also a tenant, occupied the floor below the "A" Company. The building was an obvious fire trap, and a fire anywhere in it would have constituted a serious hazard.

Fire broke out on the floor occupied by the "B" Company, and spread rapidly through the building. All employees of the "B" Company escaped safely, but the employees of the "A" Company were trapped by rising smoke and flames. Twenty-four employees of the "A" Company died, and 15 were hospitalized for one or more days.

Technically, the fire started outside the employing firm's premises and became a conflagration in a sense before it reached this area of the building. The basic question was whether the phrase "beyond the control of the employer" meant simply that if he had no control over the origin of the fire, these fatalities and injuries would be excluded from the record; or whether when the hazard was inseparably associated with the employer's premises, even though the acute manifestation of that hazard originated outside the specific premises of the employer, the cases would be included in the rates.

Decision: These fatalities and injuries should be considered as industrial and should be included in the work injury rates. Paragraph 1.6 covers this situation, which cannot be excluded under the provisions of paragraph 5.12.

STANDARDS FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Information about those standards not selected for listing in THE MAGAZINE OF STANDARDS may also be obtained from the ASA Library. Orders for these standards may be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. For the convenience of readers, the standards are listed under their general Universal Decimal Classification number. In ordering copies of standards, please refer to the number following the title.

615.4 PRACTICAL PHARMACY. MEDICINES. INSTRUMENTS. HOSPITAL EQUIPMENT

Germany (DNA)

Blood transfusion equipment, general requirements DIN 58 360

India (ISI)

Endrin emulsifiable concentrates IS:1310

Poland (PKN)

10 stds for various hospital furniture, beds, tables, washstands, etc PN Z series 78000

United Kingdom (BSI)

Dunhill's artery forceps BS 3147:1959
Eustachian catheters BS 3163:1959
Horizontal cylindrical hospital sterilizers, pressure steam type BS 3219:1960
Horizontal rectangular hospital sterilizers, pressure steam type BS 3220:1960
Medicine glasses (metric units) BS 3221:1960

616.314 DENTISTRY. ODONTOLOGY

Australia (SAA)

Acrylic denture base resin T.11-1959
Alginate impression material T.15-1959

621.3 ELECTRICAL ENGINEERING

Australia (SAA)

24-volt 36-ampere-hour lead-acid batteries for use in aircraft U.39, Sept. 1959
Heat-resisting fibrous-insulated cables and flexible cords C.158-1959 Ap.

Finland (SFS)

Round switch and outlet boxes C.V.31
6 stds for different types of insulator pins C.VI.22/24, 41/42

France (AFNOR)

Conductors, rigid, rubber insulated NF C 32-102
Insulators, porcelain, for 1000 volts and over NF C 66-130
Insulators, glass, for 1000 volts and over NF C 66-230

India (ISI)

Alternating-current electricity meters IS:722 (Part III)
Code of safety requirements for electric mains-operated audio amplifiers IS:1301
Methods of measurement on audio amplifiers IS:1302
Color of push buttons IS:1336
Three-phase induction motors IS:325

Israel (SII)

Domestic electric washing machines, safety requirements S.I. 322

Netherlands (NNI)

Rules for overhead h.v. transmission lines NEN 1060
Glossary of terms for transducers NEN 3165
Cable accessories: heavy power cable connectors NEN 2130
Directives for fitting up low-voltage cables in function and dividing bases and end sleeves NEN 3160

Poland (PKN)

2 stds for porcelain insulators for voltages up to 1 kv PN E-91000/1
Electrical hazard warning signs PN E-08501

Union of South Africa (SABS)

The rationalized Giorgi or meter-kilogram-second system of units SABS 059-1959
Standard specification for lampholders SABS 165-1959

United Kingdom (BSI)

Cables for vehicles BS 1862:1959
Terminal markings for electrical machinery and apparatus: Part 5. Terminal markings for input terminals of composite apparatus BS 822:1959
Interference characteristics and performance of radio receiving equipment for aural and visual reproduction (excluding receivers for motor vehicles and marine equipment) BS 905:1959
Paper-covered copper conductors. Round wire BS 2776:Part 1:1959
Heavy-duty composite units of air-break switches and fuses for voltages not exceeding 660 v BS 3185:1959
Enamelled copper conductors (self-fluxing enamel with polyurethane base). Round wire BS 3188:Part 1:1960
Fixed ceramic dielectric capacitors: Grade 1 for use in telecommunication and allied electronic equipment. General requirements and tests BS 2133A:Part 1:1960
Schedule for electric discharge lamps for general purposes BS 1270:1960
Impregnated-asbestos-covered copper conductors: Round wire: metric units BS 1497:Part 3:1960
Mineral-insulated cables: Copper-sheathed cables with copper conductors BS 3207:Part 1:1960
Plugs and locking sockets for electric battery vehicles and trucks (300 ampere rating) BS 3214:1960
General requirements for aircraft electrical equipment: Characteristics of electrical power systems and equipment BS 2G.100:Part 3:Feb. 1960

USSR

Electrical measuring instruments. General requirements GOST 1845-59
Porcelain insulators up to 500 v. General requirements GOST 2634-59
Storage batteries: cadmium-nickel and ferro-nickel GOST 9240-59
Dry cell batteries: packing, marking, and storing GOST 9294-59
Telephone cables, plastic insulated and PVC sheathed GOST 9297-59

621.6 FLUID DISTRIBUTION, STORAGE, CONTAINERS. PIPES. PUMPS

Australia (SAA)

Cast iron pipes and fittings (soil, waste, and ventilating) A.88-1959

Belgium (IBN)

Safety taps "ND 20" for water supply NBN 482

Denmark (DS)

2 stds for threaded steel pipes, medium and heavy, for nominal pressure 2.5-16 kg/cm² DS 540/1
Plastic pipes. Water pipes of unplasticized PVC, sizes 12-400 o.d. DS F972

France (AFNOR)

Steel pipes, smooth, table of standard dimensions PN A 48-004

India (ISI)

Mild steel tubes and tubulars IS:1239-1958

Sweden (SIS)

7 stds for pipes and fittings used in food industry SMS 1219/24

Union of South Africa (SABS)

Reinforced concrete pressure pipes SABS 676-1959

Reinforced concrete non-pressure pipes SABS 677-1959

United Kingdom (BSI)

Plug-and-socket gas connectors for portable appliances BS 570:1959

Rubber suction hose for fire-fighting purposes: Part 1. Type A hose with partially embedded wire BS 3165:1959

Rubber reel hose for fire-fighting purposes BS 3169:1959

Electrically bonded aircraft fuelling hose and hose assemblies BS 3158:1959

Couplings, branch pipes, nozzles, strainers, and auxiliaries for fire hose BS 336:1960

Dimensions of hose connections for welding and cutting equipment BS 1389:1960

Flexible tubing and connector ends for appliances burning town gas BS 669:1960

Pressure regulators for use with butane/-propane gases: Low-pressure regulators for use with propane gas BS 3016:Part 2:1960

Flexible tubing or hose (including connections where fitted) for use in butane/propane gas installations BS 3212:1960

621.753
GAGING AND GAGE MAKING

Finland (SFS)

ISO tolerance system. Introduction B.I.109

Fundamental tolerances, diameter up to 500 mm B.I.115

Fundamental deviations, shafts and holes up to 500 mm B.I.116

Fundamental tolerances, diameters 500 to 3150 mm B.I.185

677
TEXTILE AND CORDAGE INDUSTRY

Denmark (DS)

2 stds for knitted underwear for girls and boys DS 918/9

2 stds for determination of yarn numbers DS 915/6

Determination of breaking load and breaking elongation of woven fabrics DS 917

France (AFNOR)

Combs, number of teeth per centimeter NF G 42-001

Three types of combs NF G 42-007

4 stds for different parts of jack frames NF G 40-006/9

Testing of cordage used in mountain climbing NF G 36-009

India (ISI)

Method for detection and estimation of damage in cotton fabrics due to micro-organism IS:1316

Methods for testing cotton cordages for resistance to attack by micro-organism IS:1386

Determination of universal count of cotton yarn IS:1315

Cable-laid sisal rope IS:1372

Netherlands (NNI)

Testing of textiles. Determination of keratin content in textiles containing keratin and cellulose. Sulfuric acid method NEN 1233

Spain (IRATRA)

Distance between spindles of spinning machines UNE 40058

3 stds for different types of spinning rings UNE 40059/61

Width of wool carding combs UNE 40066

3 stds for open-end drop wire UNE 40067/9

United Kingdom (BSI)

Cotton furnishing fabrics BS 3153:1959

Cotton fiber fineness (airflow method) BS 3181:1959

Wool fiber fineness (airflow method) BS 3183:1959

Healds, heald frames and reeds BS 3182:1959

Cotton cheese cloth: tubulars, flats, and caps BS 3196:1960

Doffing boxes for ring spinning frames BS 3201:1960

Dimensions of textile coiler cans BS 2047:1960

Cones and tubes for winding textile yarns BS 2547:1960

Determination of wool fiber medullation BS 3209:1960

Beams for cotton, linen, silk and man-made fiber yarns 3225:1960

USSR

Linen fabric for tents GOST 643

Cotton machine thread GOST 6309

4 stds for knitted fabrics and knitted products, various methods of test GOST 9173/76

Silk fabrics, pure and mixed, standard width GOST 9202

Linen fabrics, pure and mixed, standard width GOST 9203

Cotton fabrics, pure and mixed, standard width GOST 9205

69 BUILDING INDUSTRY

Australia (SAA)

Bituminous felt roofing, type 1 (a): Saturated organic fiber felt roofing A.98-1959

Bituminous felt roofing, type 1 (c): Coated organic felt roofing fiber A.99-1959

Ireland (IIRS)

Solid concrete building blocks made with natural aggregate I.S. 20:1959

Hollow concrete building blocks made with natural aggregate I.S. 40:1959

Israel (SII)

Clay building bricks S.I. 11

Soft fiber boards S.I. 324

New Zealand (NZSI)

Thermal insulating materials for buildings and report on the application of thermal insulation to buildings N.Z.S.S. 1340:1959

Norway (NSF)

Mortars NS 422

Poland (PKN)

Hollow blocks, ceramic PN B-12002

Spain (IRATRA)

Hydraulic lime UNE 41068

Emulsified asphalt UNE 41102

Road tar UNE 41103

Union of South Africa (SABS)

Plain and reinforced concrete. Chapter 5, A guide to building by-laws for local authorities SABS 026-1958

Asbestos cement sheets (corrugated and flat) SABS 685-1959

United Kingdom (BSI)

Use of structural steel in building BS 449:1959

Metal skirtings, picture rails and beads BS 1246:1959

744 TECHNICAL DRAWINGS

Finland (SFS)

Definition of surface roughness symbols B.II.51

5 stds for different symbols used on drawings B.II.52/56

Germany (DNA)

Graphical symbols for nuts, screws, and holes DIN 407

Conventional representation for railroad cars DIN 5505

3 stds for different drawing pens DIN 58 526/8

Netherlands (NNI)

Graphical symbols for hydraulic works NEN 1330

Norway (NSF)

Technical drawings for concrete constructions NS 418

Sweden (SIS)

Engineering drawing practice. Introduction SMS 1901

12 stds for different specimens of drafting practice SMS 1902/3, 1905/13, 1917

USSR

17 stds for drawing room practices (in one volume) GOST 2940,3450/62, 3465/6, 9171-59

News Briefs...

• THE NEW INTERNATIONAL Office of Consumers Unions, organized at The Hague early this year, has as charter members 14 nonprofit, noncommercial organizations engaged in testing and rating products used by ultimate consumers in as many countries. Colston E. Warne, president of Consumers Union of U.S., Inc, is president. The new office will serve as a clearinghouse for consumer test methods, plans, and publications. It will also assist in developing consumer movements in other countries and provide information covering efforts to raise consumer living standards throughout the world.

Consumer goods testing organizations from the following countries helped establish the new group: Australia, Austria, Belgium, Denmark, France, Iceland, Israel, Netherlands, New Zealand, Norway, Sweden, United Kingdom, USA, and West Germany.

• A RECOMMENDATION that none of the three ABC (American-British-Canadian) nations make unilateral changes in the Unified Screw Thread standards without consulting the others is being considered at a meeting of the ABC Conference on the Unification of Engineering Standards, June 6-11 at Ottawa, Canada.

• MARGARET J. McGINNIS, executive manager of the Industrial Diamond Association of America, Inc, was honored early this year for her work in standards. The Service Pin Award of the Paterson, N.J. Chapter of the American Society of Tool and Manufacturing Engineers, was presented to Mrs McGinnis in recognition of the work of the Industrial Diamond Association on the American Standard Diamond Dressing Tools, B67.1-1958. The B67 project is cosponsored by the Industrial Diamond Association and the American Society of Tool and Manufacturing Engineers.

• THE BELGIAN STANDARDS association (IBN), which reports an increase in its national standards of from slightly more than 100 in 1957 to more than 400 in 1959, also reports that the number of foreign standards ordered from IBN has quadrupled in the past 10 years. In 1959, IBN furnished some 21,000 foreign standards to its members who asked for them, particularly standards from Germany, United Kingdom, USA, France, and The Netherlands.

The Belgian standards issued by IBN cover a great variety of subjects. Some 71 projects are under way. In addition, the association has published ten new technical notes. One is a French-Netherlands dictionary of automotive terms. The nine others are commentaries relative to standards established by the Belgian Society for the Study of Petroleum and Products Derived from It.

A new Belgian Catalog of Standards, printed in 1959, is published in a new format conforming to a recommendation of the International Organization for Standardization. For the first time, it contains a list of the ISO projects in which IBN is a participating member.

Approximately 27,700 copies of approved IBN standards and drafts were distributed in 1959. The association reports that public authorities were the largest users, purchasing the standards for use in various government departments.

• A SET OF 24 STANDARD samples of metal-organic compounds suitable for spectrographic and chemical analysis of petroluem products, is now available from the National Bureau of Standards. These stable, oil-soluble substances are the result of three years of research and development conducted for the American Petroleum Institute.

For many years chemists in the petroleum industry have needed accurate standard samples for determining metals in petroleum products, the Bureau explains. From the spectrographic determination of the metals that accumulate in crank case oils, engineers can judge engine wear and anticipate trouble prior to engine failure. Periodic analyses of oils from diesel locomotive engines are now being made by several large railroads to detect faulty bearings. The method requires standard samples containing known quantities of the elements in question. Determination of metallic constituents in petroleum products is also highly important in refining processes and in the use and control of materials added to oils to improve lubricating properties.

The standard metal-organic materials, prepared in crystalline form for easy weighing and handling, may be purchased for $6.00 per 5 grams of material. A certificate of analysis, plus directions for preparing a solution of the substance, is distributed with each sample. Orders should be directed to the Standard Sample Clerk, National Bureau of Standards, Washington 25, D.C.

• THIS YEAR, for the first time, the United States was represented at a meeting of an international technical committee whose objective is unification of drawing practices throughout the world.

Charles E. Hilton, secretary of the Graphic Standards Board, attended the third plenary meeting of ISO Technical Committee 10 on engineering drawing of the International Organization for Standardization (ISO), in Lisbon, Portugal, May 10-13. Since the United States holds only observer status on this committee, Mr Hilton had no voting rights at the meeting, but is now in a position to report back to American industry and technology on the necessity or desirability of more active participation in this work in the future.

American drawing principles have to a large extent been coordinated with those of Canada and the United Kingdom. In 1957, at the ABC Conference on Unification of Engineering Standards (American, British, Canadian), the delegates of the three countries confirmed the fact that the drafting principles and methods, as examplified in the national standards of the USA, United Kingdom, and Canada were in practical agreement. Any existing minor differences were to be indicated in the appendixes of the individual standards.

In the United States, the unification of drafting practice has been in progress since 1926 within Committee Y14 (originally Z14) under the sponsorship of The American Society of Mechanical Engineers and the American Society for Engineering Education. All drawing principles and methods, except architectural, are under consideration and are being published as sections of American Standard Drafting Manual, Y14. To date, eleven different sections have been approved and published. It is expected that the work to complete the unification of American drafting practices will continue for a number of years.

The 23 participating members of ISO TC/10 are: Austria, Belgium, Brazil, Bulgaria, Canada, Czechoslovakia, Denmark, Finland, France, Germany, Hungary, India, Italy, Israel, Netherlands, Poland, Portugal, Roumania, Spain, Sweden, Switzerland, United Kindom, and USSR.

• THE AMERICAN STANDARD covering overhead-type distribution transformers has been revised, with the addition of new tables and new material on interchangeability of bushings.

The revision is titled Overhead-Type Distribution Transformers, 67,000 Volts and Below, 500 kva and Smaller, C57.12.20-1959. It is published as Section 20 of American Standard Requirements, Terminology, and Test Code for Distribution, Power, and Regulating Transformers, and Reactors Other Than Current-Limiting Reactors, C57.12.

American Standard C57.12 correlates data from many sources into a single voluntary national standard. Sources include the standards of the American Institute of Electrical Engineers and the National Electrical Manufacturers Association, as well as reports of the Edison Electric Institute, and others. To facilitate reference and revision, it is published in six separate booklets. The previously approved five American Standards are:

C57.12-1958 General, $2.00.
C57.12.10-1958 Transformers, 67,000 Volts and Below, 501 Through 10,000 kva, 3 Phase; 501 Through 5,000 kva, 1 Phase, $1.50.
C57.12.30-1958 Three-Phase Load-Tap-Changing Transformers, 67,000 Volts and Below, 1,000 kva Through 10,000 kva, $1.50.
C57.12.80-1958 Terminology, $1.00.
C57.12.90-1958 Test Code, $2.20.

Price of C57.12.20-1959, Overhead-Type Distribution Transformers, 67,000 Volts and Below, 500 kva and Smaller is $2.30 a copy. Copies can be obtained from the American Standards Association.

• SINCE MANY BUILDING codes specify that copper drainage plumbing must be made up of standard parts and conform to American Standards, it is expected that the revised American Standard Cast-Bronze Solder-Joint Drainage Fittings, B16.23-1960, will make it easier for contractors to install copper systems and conform to local codes. In the new edition, the standard has been greatly expanded, and the range of sizes covered increased.

The standard and its subsequent revisions were sparked by the great increase in use of copper drainage fittings in the past few years because of labor saving ease of installation. Cast-bronze fittings are solder-jointed, or sweated; other materials, requiring threading, take considerably more time to install.

Sponsors of the standard are the Mechanical Contractors Association of America, the Manufacturers Standardization Society of the Valve and Fittings Industry, and The American Society of Mechanical Engineers.

Copies are available at $2.00 each.

• DR LEWIS M. BRANSCOMB has been appointed chief of a new scientific division, Atomic Physics, established by the National Bureau of Standards.

The new division was created by partitioning the Atomic and Radiation Physics Division. The other half of the old division will be renamed the Radiation Physics Division. L. S. Taylor continues as its chief.

Major areas of research in the new Atomic Physics Division include precise determination of atomic constants and other physical properties associated with free electrons, atoms, ions, and molecules; quantitative studies of the microscopic, mutual interactions of ions, atoms, molecules, and their constituent particles; and studies of the solid state, particularly of semiconductors.

• STANDARD SURFACES of known slipperiness will be used in a new approach to measurement of skid resistance of pavements by Committee E-17, just being organized by the American Society for Testing Materials.

The committee is the result of an international conference to study methods of preventing skidding, held in September 1958, which revealed that standard equipment and test methods are needed for measuring the skid resistance of pavement surfaces. The primary task of the new committee will be to develop standard test vehicles and standard surfaces for calibration purposes.

The organization meeting will be held during the 1960 ASTM Annual Meeting in Atlantic City, N.J., June 26-July 1. Anyone interested in taking part in the work should get in touch with the American Society for Testing Materials, 1916 Race Street, Philadelphia, Pa.

• A FULL DAY MEETING devoted to standardization, sponsored by the Technical Societies Council of New Jersey, March 29, gave members of the group of engineering societies that are members of the Council an opportunity to become acquainted with a number of different phases of standardization. The papers presented discussions on why standardization is necessary; its importance to national defense; the American Standards Association; benefits of standardization to industry; safety standards; and the need of automation in standardization.

Alvin G. McNish, acting chief, Optics and Metrology Division, National Bureau of Standards, gave the address at the dinner meeting.

news briefs . . . continued

• ASA MEMBER LEO B. MOORE, associate professor at M.I.T.'s School of Industrial Management, has been awarded the 1960 Gilbreth Medal of the Society for Advancement of Management.

This medal, given in recognition of outstanding achievement in the fields of motion and motion time study, is presented annually by a joint conference of the S.A.M. and The American Society of Mechanical Engineers.

Professor Moore, engineer, educator, author, and consultant, was cited for his vision as an industrial engineer—in seeing in motion studies the future potential of management—and was praised for developing the Improvement Management Concept. This concept, which is gaining widespread acceptance in industry, is based on the philosophy that a manager, along with his duties in planning, directing, and controlling, is also responsible for *improvement;* in fact, the entire concept centers around a concern for the human organization and the way it operates. It is supported by a series of tools and techniques that are pertinent to the improvement program.

Professor Moore has gained international recognition for his work in industrial engineering, management, and standards. He is a Fellow of the Standards Engineers Society, and a member of ASA, the Academy of Managment, American Institute of Industrial Engineers, and the American Society for Engineering Education. He is the author of Section 9, "Standardization," in the *Handbook of Industrial Engineering and Management*, and is known both in this country and Canada for his articles and lectures.

• A LOOK at the present state of knowledge in the science of materials will highlight the 63rd annual meeting of the American Society for Testing Materials at Atlantic City, N.J., June 26-July 1. The Society's new Division of Materials Sciences has organized an all-day program for Monday, June 27, consisting of two symposia related to basic materials knowledge. These will cover recent progress in materials sciences and the nature and origin of strength of materials.

Attention also will be given to solar energy, nuclear fuel element development, low temperature properties of high-strength aircraft and missile materials, acoustical fatigue, and radiation effects and radiation dosimetry.

ASTM technical committees and their subcommittees plan to hold between 900 and 1000 committee meetings during the week, and the biennial exhibit of testing apparatus and laboratory supplies will run throughout the week.

The Society announces that anyone interested is invited to attend whether a member of ASTM or not.

• SIGNIFICANT advances have been made in developing highly stable gage blocks and ultra-precise measurement techniques, the National Bureau of Standards has announced. This is part of a long-range research program aimed at an accuracy of 1 part in 10 million in gage block calibrations.

Three types of gage blocks produced by the Bureau's metallurgy laboratories show dimensional stability considerably greater than the best commercial blocks, the Bureau reports.

As reference standards for such high-precision manufacturing operations as the making of machine tools, ball bearings, and missile control mechanisms, gage blocks must be capable of providing measurements precise to within one part in 100,000. In the space age, measurements must be precise to 1 part in a million. Therefore, since the length of a block must be known even more accurately than the measurement referred to it, gage blocks certified to 1 or 2 parts in 10 million must soon be available on a regular basis.

In attempting to meet these demands for precision, the Bureau is focusing attention on the characteristics of the gage blocks as well as on the equipment and methods for measuring them. Because of the industrial importance of this work, a group of private firms is helping to support the metallurgical research underlying the fabrication of precision blocks and the metrology that is basic in any attempt to achieve calibrations of the required accuracy.

A special effort is being made to develop gage blocks that will retain their calibrated lengths to high accuracy over a considerable period with much less shrinkage or growth than is normally expected of precision gage blocks. At the same time, other requirements for gage blocks are being taken into consideration. These include an appropriate coefficient of thermal expansion, a high degree of surface finish, flatness of surface, parallelism of opposite gaging faces, and resistance to wear, deformation, and atmospheric and fingerprint corrosion.

• THOSE INVOLVED with the installation of gas appliances and piping may now refer to a single American Standard. This is the result of cooperation between the gas industry and 16 national groups in developing a revision of the widely known American Standard Installation of Gas Appliances and Gas Piping in Buildings (excluding undiluted liquefied petroleum gas), Z21.30-1954. The revision approved by the American Standards Association as American Standard Installation of Gas Appliances and Gas Piping, Z21.30-1959, includes all fuel gases. It is published by the American Gas Association, sponsor of ASA project Z21 concerned with approval and installation requirements for gas-burning appliances. Some 40 American Standards intended to protect the public by ensuring the safe and satisfactory utilization of gas have been developed through this project.

The gas piping portion of the new standard has been extended to cover all piping from the outlet of the meter set assembly.

The basic standards in the publication apply only to low-pressure gas piping systems (not in excess of ½-pound psi or 14 inches water column) extending from the outlet to the meter set assembly or the outlet of the service regulator when a meter is not provided, to the inlet connection of appliances, and installation and operation of residential and commercial gas appliances supplied through such systems. They are intended to cover design, fabrication, installation, tests, and operations of such systems for fuel gases such as natural gas, manufactured gas, undiluted liquefied petroleum gases, liquefied petroleum gas-air mixtures, or mixtures of any of these gases.

These standards are not intended to cover systems or portions of systems supplying equipment engineered, designed, and installed for specific manufacturing production processing and power generating ap-

plications, such as large and high pressure boilers, melting and treating furnaces, and production ovens. For piping in industrial plants, reference should be made to the American Standard Code for Pressure Piping, Section 2, B31.1-1955.

American Standard Z21.30-1959 is available at 50 cents a copy from the American Standards Association.

• Another in the National Fire Protection Association's series of fire-prevention codes for explosive dusts has been approved by the American Standards Association. It is titled American Standard Code for the Processing and Finishing of Aluminum, Z12.19-1959.

The aluminum finishing code was officially adopted by NFPA in 1956. This year it was amended by the addition of a paragraph giving precautions to be followed when powder-operated tools are used.

The aluminum code indicates the practices necessary to reduce the possibility of fires or explosions for industries where aluminum and aluminum alloys are subject to processing or finishing operations in which a fine metallic dust or powder is liberated. It applies to operations such as grinding, buffing, and polishing. In some of these operations the aluminum particles may be intermixed with other materials such as lint, wax, solvents, or abrasives. It also covers the handling and storage of aluminum powder by processors.

The manufacture of aluminum powder is covered by the newly revised American Standard Code for the Prevention of Dust Explosions in the Manufacture of Aluminum Powder, Z12.11-1959. The American Standard Z12.19-1959 is available from ASA at 40 cents a copy; the American Standard Z12.11-1959 at 50 cents a copy.

In addition, revisions of 14 other codes in this NFPA series have been approved as American Standards. These cover prevention of dust explosions in pulverized fuel systems, starch factories, flour and feed mills, terminal grain elevators, woodworking plants, sugar and cocoa, coal-preparation plants, wood flour manufacturing establishments, spice-grinding plants, sulfur fires and explosions, country grain elevators, magnesium powder or dust, plastics, and confectionery manufacturing plants.

• "THE SIXTIES—Expanding Horizons for Standards" was the theme of the 33rd Annual Meeting of the Canadian Standards Association, held at the Chateau Frontenac Hotel, Quebec, May 20.

Dr Henri Gaudefroy, Dean of Ecole Polytechnique, University of Montreal, was the guest speaker. His subject was "An Approach for Broader and More Uniform Standards."

This year the Association completed its forty-first year of service to Canada, as the nation's clearinghouse for voluntary standards.

During the past year it issued 43 new standards and was actively engaged on 500 projects.

• INFORMATION on how committees working on American Standards may be organized and how their work can be carried on in accordance with the procedures of the American Standards Association has just been brought up to date. The document is the sixth edition of a work entitled "The Organization and Work of Sectional Committees Operating Under the Constitution, By-Laws, and Procedure of the American Standards Association, Incorporated." This is a completely rewritten edition, reviewed by the Standards Council, and offered by ASA for use by sponsors and committee members working on American Standards. It is designated PR 27.

• TWENTY-ONE TECHNICAL COMMITTEES and subcommittees will hold sessions during the general meeting of the International Electrotechnical Commission at New Delhi, India, October 30-November 12. Present plans indicate that the U.S. will be represented at meetings of at least 15 of these, and at the meeting of the Committee of Action, the IEC governing body. Dr S. Radhakrishnan, vice-president of India, will open the meeting.

The IEC program shows the following:

Registration	Oct 30
Opening Meeting	
Charles Le Maistre Memorial Lecture	Oct 31
Dimensions of Motors, 2B	Oct 31-Nov 5
Dimensions of Carbon Brushes, 2F	Nov 5-9
Synchronous Machine Constants, 2G	Nov 10-12
Radio-communication, 12	Nov 8
Radio Receiving Equipment, 12-1	Oct 31-Nov 7
Safety, 12-2	Oct 31-Nov 7
Climatic and Durability Tests for Radio-communication Equipment	Nov 9-12
Insulating Materials, 15	Nov 7-11
Switchgear and Controlgear, 17	Nov 11
High-voltage Switchgear and Controlgear, 17A	Oct 31-Nov 5
Low-voltage Switchgear and Controlgear, 17B	Nov 7-10
Primary Cells and Batteries, 35	Oct 31-Nov 4
Insulators, 36	Nov 8-12
Sockets and Accessories for Electronic Tubes and Valves, 39/40	Nov 10-11
Components for Electronic Equipment, 40	Nov 12
Piezo-electric Crystals, 40-3	Oct 31-Nov 4
Connectors and Switches, 40-4	Nov 5-8
Basic Testing Procedure, 40-5	Nov 1-4
Shock and Bump Testing, 40-5/WG 1	Oct 31-Nov 1
Electric Fans, 43	Nov 7-10
Electrical Measuring Instruments Used in Connection with Ionizing Radiation, 45	Nov 5-12
Committee of Action	Nov 5 and 12

The Indian Standards Institution, acting as host, has arranged a number of special events for the benefit of the delegates. These will include a soirée of Indian dance and music; a reception by the Union Minister for Commerce and Industry, president of the ISI; a banquet, and an Indian dance drama. On Sunday, November 6, a special train will take the delegates on an excursion to Bhakra-Nangal, India's largest irrigation and power generation project, situated in the Himalayan foothills 220 miles from Delhi; or on a bus excursion to the seven cities of Delhi. November 3, a day free of all technical meetings, will be devoted to an excursion to the Taj Mahal-Agra by special train. Technical visits have also been arranged to the National Physical Laboratory, the All-India Radio Station, the International Monitoring Center, and the Central Water and Power Commission Museum.

news briefs . . . continued

• A NEW PUBLICATION aimed to ease the burden of engineers designing today's complicated rockets has just been approved by the American Standards Association and published by The American Society of Mechanical Engineers.

Titled "Letter Symbols for Rocket Propulsion," and designated ASA Y10.14-1959, it gathers in one volume symbols for terms and concepts frequently used in the design, manufacture, and operation of rockets. Where more than one symbol is in common use, the standard designates one as the preferred symbol, but includes others as alternates.

One time-saving symbol, for example, permits specialists to abbreviate the expression "ratio of solid propellant surface area ahead of a given plane to the port area of that plane" simply by writing the letter *G* in italic type. The letter *H* can be used in technical writings to mean "Heat flow rate per unit of area per degree across a boundary surface; film coefficient of heat transfer."

Several hundred symbols are included in the new standard. Letters from the English alphabet are printed in italics, to aid in distinguishing the letter "O" from the figure "zero" and the letter "I" from the figure "one". Letters from Greek or other alphabets are printed in the usual non-italic form.

A new concept has been incorporated by the authors of the standard in symbolizing the lessening attraction between a rocket and the earth as the rocket speeds off into space. Instead of assuming, as is usually done, that gravity decreases and weight remains constant, space flight has forced the authors of the standard to adopt the opposite concept, that gravity is constant and weight "flows" out of the rocket as it departs from a planet. To abbreviate this concept of "weight flow" the publication introduces as the standard symbol an italic *W* with a dot over it.

Other terms essential to rocketeers such as payload mass ratio, flight burnout condition, drag coefficient, and slivers of solid propellant also have brief symbols assigned to them.

The new American Standard has been under preparation since 1952 by a subcommittee of the ASA Sectional Committee Y10 on Letter Symbols, sponsored by ASME, in collaboration with the American Rocket Society and the Institute of the Aeronautical Sciences. The members of the subcommittee represent industries, universities, and government agencies active in rocket and missile work.

American Standard Letter Symbols for Rocket Propulsion, Y10.14-1959, is available at $1.50 a copy.

• AMERICAN STANDARD Methods for Determining the Dimensional Change Characteristics of Photographic Films and Papers have been approved and published for the first time by the American Standards Association.

Designated PH1.32-1959, the new standard sets down uniform methods and techniques for determining the dimensional change of photographic films and papers caused by (1) variations in moisture content due to change in the relative humidity of the atmosphere (humidity coefficient of expansion); (2) change in temperature (thermal coefficient of expansion); (3) the normal processing steps of developing, fixing, washing, and drying; and (4) processing plus aging.

The standard offers three alternative methods of measurement of sample lengths. They are: the pin gage method; optical gage method; and the rotating grid method.

In the pin gage method, samples must be perforated to fit the gage. This method has the advantage of speed and simplicity and does not require dark-room operations.

The optical gage method requires an optical gage which permits measurement of a photographic or other image independent of the base.

The rotating grid method makes use of a master grid and requires no instruments other than a low-power magnifying glass. However, its use is limited to transparent and processed samples and it is less accurate than the first two methods.

This new standard has become necessary due to the increasing use of photographic films in applications where dimensional stability is critical. The trend has emphasized the importance of an accurate measure of dimensional properties. In photomechanical reproductions, for example, a dimensional change of as little as 0.01 percent, which is 0.005 inch in a 50-inch sheet, is of practical importance. In the case of aerial mapping, uniform shrinkage is not serious since it can be easily corrected by a change in magnification, but any difference in shrinkage in the two principal directions is a source of error.

American Standard Methods for Determining the Dimensional Change Characteristics of Photographic Films and Papers, PH1.32-1959, is available at $1.50 per copy from the American Standards Association.

• THE HORACE HARDY LESTER Research Nuclear Reactor, at Watertown Arsenal, dedicated by the United States Army May 17, bears the name of one of the original members of American War Committee Z54. This committee was organized under the emergency procedures of the American Standards Association to develop American War Standards for safe use of x-rays in industry.

Dr Lester, chief scientist at the Watertown Arsenal from 1922-1955, was a pioneer in industrial radiography. He initiated and promoted the nuclear reactor project which resulted in installation of this first Army nuclear research reactor, which has been named in his honor.

J. W. Birkenstock

• THE OFFICE EQUIPMENT Manufacturers Institute, new member-body of the American Standards Association, has named J. W. Birkenstock as its representative on the Standards Council. Mr Birkenstock is vice-president of the International Business Machines Corporation. He has been with IBM since graduation from the State University of Iowa in 1935. In 1945, Mr Birkenstock was transferred from Kansas City, where he was IBM branch manager, to the IBM World

Headquarters office in New York as special sales executive assisting the executive vice-president. Since that time he has held the positions of IBM general sales manager, manager of the future demands department, executive assistant to the president, manager of the defense contracts department, executive director of the product planning and market analysis division, and is at present vice-president in charge of commercial development.

Mr Birkenstock is a director of the Office Equipment Manufacturers Institute and a member of its executive committee.

• TO FACILITATE the use of textile machinery from different manufacturing nations in a single user country, the Textile Machinery and Accessories Committee of the International Organization for Standardization (ISO) has for several years been working toward the standardization of certain features and component parts of textile machinery.

As a result, the ISO has now published the following nine recommendations:

ISO Recommendation R 92 — Definition of Side (Left or Right) of Spinning Machinery

ISO Recommendation R 93 — Cylindrical Sliver Cans (Dimensions)

ISO Recommendation R 94 — Spindle Gauges for Ring-Spinning and Ring-Doubling Frames

ISO Recommendation R 95 — Rings for Ring-Spinning and Ring-Doubling Frames For "C" Travellers (Reversible)

ISO Recommendation R 96 — Rings for Ring-Spinning and Ring-Doubling Frames For "C" Travelers (Non Reversible)

ISO Recommendation R 97 — Rings for Ring-Spinning and Ring-Doubling Frames for Ear-Shaped Travellers

ISO Recommendation R 98 — Diameters of Drafting Rollers for Cotton, Wool, Spun Silk and Staple Fibre

ISO Recommendation R 108 — Weaving Looms — Definition of Side (Left or Right)

ISO Recommendation R 109 — Weaving Looms — Working Width

The USA is not a participating member of the ISO Technical Committee 72 on textile machinery and accessories. As an observer member, the ASA was instructed by American industry to vote "no objection" to the standards.

Copies of these ISO Recommendations are available at 60 cents each from the American Standards Association.

New Books . . .

PLASTICS ENGINEERING HANDBOOK OF THE SOCIETY OF THE PLASTICS INDUSTRY, INC.

Third edition. 1960. *Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y.* $15.00. Contains new, up-to-date information on the progress and advances made in all areas of the plastics field since publication of the previous edition of the Handbook in 1954. The present edition contains several new chapters, and most of the other chapters have been considerably revised or rewritten. There is much new material on nomenclature, cellular plastics, decorating, welding, and plastics as adhesives. The book describes every step in the manufacturing operation. Also included are chapters on standards for tolerances on molded articles and design standards for inserts. The text is fully illustrated with photographs, tables, and charts throughout.

TRANSFORMERS FOR THE ELECTRIC POWER INDUSTRY.

By R. L. Bean, N. Chackan, Jr, H. R. Moore, and E. C. Wentz. Oct. 1959. *410 pp. 277 illustrations. McGraw-Hill, 330 W. 42 Street, New York 36, N. Y.* $12.50. The book describes types of transformers, their parts, performance characteristics, auxiliary and protective equipment, and both old and new test methods. It also discusses distribution systems and how they affect transformer design; relay operation; lightning protection, and oil deterioration. The technical background of the American Standard C57 series on transformers is summarized and interpreted in this publication.

ASTM STANDARDS ON METALLIC-COATED IRON AND STEEL PRODUCTS.

1960. *Second edition. 176 pp. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa.* $3.50. This new edition is a complete revision of the first edition, issued in 1956. Of the 34 standards, all but 5 have been newly added, revised, or have been changed in status.

Among the materials covered are zinc-coated wire, strands, fencing, sheets, pipe, and hardware. Also included are aluminum-coated wire and aluminum-coated iron and steel articles, as well as terne-alloy-coated sheets. There are 25 specifications, 6 methods of test, and 3 recommended practices, including those approved by ASA as American Standards.

MANUAL ON INDUSTRIAL WATER AND INDUSTRIAL WASTE WATER.

1960. *Second edition. 670 pp. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa.* $11.00. Deals with the influence of water used in industry either as a raw material or in conjunction with manufacturing processes. Combined with general discussions of the problems arising from industrial use of water are details of specific control procedures and instructions for such operations as sampling water under various conditions and in the several forms in which it is employed. Standard methods for sampling, analysis, reporting, and testing water are included for ready reference, together with constants, names, and other factors of immediate application. Techniques which have not yet been standardized are discussed to aid water specialists in keeping abreast of new developments.

YOUR GUIDE TO NEMA STANDARDS PUBLICATIONS.

February 1960. *National Electrical Manufacturers Association, 155 East 44 Street, New York 17, N. Y. No charge.* This booklet lists more than 200 NEMA standards with a short description of each, in the following classifications: appliances; illuminating equipment; signalling and communication equipment; industrial apparatus; building equipment and supplies; insulating materials, insulated wire and cable; generation, transmission, and distribution equipment. A number of NEMA standards that have been approved as American Standards are included in the list.

1959 SUPPLEMENTS TO BOOK OF ASTM STANDARDS.

In 10 parts. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. $4.00 *per part;* $40.00 *per set.* Brings the corresponding part of the 1958 Book of Standards up to date by including new standards and revisions adopted in 1959. The 1959 supplements give in their latest form standard specifications, tests, and definitions, and recommended practices which are being issued for the first time or revised since their appearance in the 1958 Book of Standards.

Part 1—Ferrous Metals Specifications (362 pp, 58 standards)

Part 2—Non-Ferrous Metals Specifications and Electronic Materials (280 pp, 38 standards)

Part 3—Methods of Testing Metals (Except Chemical Analysis) (110 pp, 14 standards)

Part 4—Cement, Concrete, Mortars, Road Materials, Waterproofing, Soils (200 pp, 42 standards)

Part 5—Masonry Products, Ceramics, Thermal Insulation, Acoustical Materials, Sandwich and Building Construction, Fire Tests (218 pp, 36 standards)

Part 6—Wood, Paper, Shipping Containers, Adhesives, Cellulose, Leather, Casein (142 pp, 20 standards)

Part 7—Petroleum Products, Lubricants, Tank Measurement, Engine Tests (428 pp, 43 standards)

Part 8—Paint, Naval Stores, Aromatic Hydrocarbons, Gaseous Fuels, Engine Antifreezes (252 pp, 43 standards)

Part 9—Plastics, Electrical Insulation, Rubber, Carbon Black (546 pp, 74 standards)
Part 10—Textiles, Soap, Water, Atmospheric Analysis, Wax Polishes (394 pp, 40 standards)

1960 SAE HANDBOOK.

904 *pp. Society of Automotive Engineers, 485 Lexington Avenue, New York* 17, *N. Y.* $20.00. Contains reports of SAE technical committees, including recommended practices and SAE standards, references to American Standards and standards of other technical societies. The technical material is contained in the following major parts, with detailed information on subjects within these categories: Ferrous and nonferrous metals, nonmetallic materials, threads, fasteners, and common parts; electrical equipment, power plant components and accessories, passenger cars, trucks and buses, tractor and earthmoving equipment, and marine equipment. This latest edition contains 15 new standards or recommended practices, 69 technical revisions, and editorial changes in other standards.

PHARMACOPEIA OF THE UNITED STATES OF AMERICA.

U.S.P. XVI. Sixteenth revision. Official from October 1960. *Mack Publishing Company, Easton, Pa.* Prepared by the Committee of Revision and published by the Board of Trustees of the U.S. Pharmacopeial Convention, Inc, this new edition brings up to date these well-known basic standards for the potency and purity of drugs. The important new knowledge that has been developed during the past decade is reflected in the material included. Among the many new materials added are influenza virus vaccine, human blood cells, phenoxymethyl penicillin, titanium dioxide, and radiogold solution. And, the committee announces, for the first time it has become necessary to standardize radioactive drugs and to recognize the use of radioactive tracers in drug analysis. Since 1906, when the first Pure Food and Drug Act designated the standards of the Pharmacopeia as the standards of strength, quality, and purity of medicinal products sold in interstate commerce, the Pharmacopeia has been so recognized.

REPORT OF THE 44TH NATIONAL CONFERENCE OF WEIGHTS AND MEASURES, 1959.

National Bureau of Standards Miscellaneous Publication No. 228. December 1959. 144 *pp. Superintendent of Documents, U.S. Government Printing Office, Washington* 25, *D.C.* $0.65. Full texts of the opening addresses, committee reports, and papers delivered by the delegates are included in this report of the conference, held in Washington, June 1959.

Subjects discussed include communications in weights and measures enforcement; moisture measurement in the grain industry; weights and measures in Alaska; weights and measures administration in France; the Federal Trade Commission, its authority, its activities.

AMERICAN STANDARDS

Just Published . . .

If your company is a member of the American Standards Association, it is entitled to receive membership service copies of these newly published American Standards. The ASA contact in your company receives a bimonthy announcement of new American Standards, which also serves as an order form. Find out who your ASA contact is and order your American Standards through him. He will make sure your company receives the service to which it is entitled.

BUILDING AND CONSTRUCTION

Vitrified Clay Filter Block for Trickling Filters, Specifications for, ASTM C 159-59T; ASA A102.1-1960 (Revision of ASTM C 159-55; ASA A102.1-1956) $0.30
Specifications covering two types of filter blocks made from clay or shale or mixtures thereof: one-piece filter block suitable for use in constructing a single-course trickling floor, and two-unit filter block system suitable for use in constructing a two-course trickling filter floor, both providing drainage and aeration. Specifies compressive strength, absorption, acid resistance, and permissible variations in dimensions.

Sponsor: American Society for Testing Materials

ELECTRIC AND ELECTRONIC

Sheet and Plate Materials Used for Electrical Insulation, Methods of Testing, ASTM D 229-58; ASA C59.13-1960 (Revision of ASTM D 229-49; ASA C59.13-1951) $0.30
Covers procedures for testing stiff, flat sheet and plate materials, such as phenolic and other types of laminated sheets, hard rubber, asbestos composition board, etc, to be used as electrical insulation. Tests on flexural, tensile, and compressive strength are given as well as on dielectric strength, insulation strength, and dissipation factor.

Sponsor: American Society for Testing Materials

MECHANICAL

Square and Hexagon Bolts and Nuts, B18.2-1960 (Revision of B18.2-1955) $2.00
Dimensional and material specifications for square and hexagon headed bolts and cap screws, lag bolts, square head set screws, and nuts. Appendixes cover wrench openings, formulas for head and nut dimensions, and thread runout sleeve gage. Latest revision makes changes in bolt length tolerances for certain sizes and adds an appendix giving SAE and ASTM grade markings for steel bolts.

Large Rivets, B18.4-1960 (Revision of B18.4-1950) $1.50
Covers rivets designated respectively as button head, high button head (acorn), flat-top countersunk head, round-top countersunk head, cone head, and pan head, in sizes from ½ inch to 1 ¾ inches in diameter.

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

METALLURGY

Zinc-Coated (Galvanized) Iron or Steel Sheets, Coils, and Cut Lengths, Specifications for, ASTM A 93-59T; ASA G8.2-1960 (Revision of ASTM A 93-58T; ASA G8.2-1959) $0.30
Specifications covering sheets in coils and cut lengths, zinc coated (gal-

vanized) by the hot-dip process. Galvanized sheets are produced with eight classes of zinc coatings, applied by the hot-dip process as outlined in the table provided, so that consumers may obtain sheets consistent with service life expected and with forming hazards involved.

Sponsor: American Society for Testing Materials

PIPE AND FITTINGS

Standard Strength Ceramic Glazed or Unglazed Sewer Pipe, Specifications for, ASTM C 261-59T; ASA A106.4-1960 (Revision of ASTM C 261-57T; ASA A106.4-1958) $0.30

Covers standard strength ceramic glazed or unglazed clay pipe intended to be used for the conveyance of sewage, industrial wastes, and storm water or other liquids.

Sponsor: American Society for Testing Materials

PLASTICS

Haze and Luminous Transmittance of Transparent Plastics, Method of Test for, ASTM D 1003-59T; ASA K65.5-1960 (Revision of ASTM D 1003-52; ASA K65.5-1959) $0.30

This method is intended to measure the light-transmitting properties, and from these the light-scattering properties of planar sections of transparent plastics. The two procedures described are carried out with the Hazemeter and the Recording Spectrophotometer.

Ammonia in Phenol-Formaldehyde Molded Materials, Method of Test for, ASTM D 834-59T; ASA K65.11-1960 (Revision of ASTM D 834-57; ASA K65.11-1959) $0.30

Methods cover two procedures for detection and estimation of available free ammonia under prescribed conditions in parts molded of single-stage phenol-formaldehyde molding compounds, i.e., whether quantitative test should be applied, and gives quantitative values under conditions of test. Describes apparatus to be used and how to prepare test specimens. Gives procedure to follow in making test.

Sponsor: American Society for Testing Materials

SAFETY

Safety Code for Window Cleaning, A39.1-1959 (Revision of A39-1933) $1.00

Safety requirements for the protection of window cleaners where the work is done wholly or partially outside of public buildings and more than one story above the adjoining level. Includes specifications for safety belts and attachments to the buildings. Also provides for the use of swinging scaffolds, boatswains' chairs, and portable ladders.

Sponsor: National Safety Council

WOOD

Ash in Wood, Method of Test for, ASTM D 1102-56; ASA O13.1-1960 $0.30

Intended for determination of ash, expressed as percentage of residue remaining after dry oxidation (oxidation at 580 to 600 C) of wood or wood products. Specifies apparatus to be used in test; how to obtain test specimen; procedure of test, and how to calculate and report results.

Alpha-Cellulose in Wood, Method of Test for, ASTM D 1103-55T; ASA O13.2-1960 $0.30

Intended for determination of alpha-cellulose in wood; principle of method; apparatus to be used; reagents; test specimen, procedure, calculation and report.

Holocellulose in Wood, Method of Test for, ASTM D 1104-56; ASA O13.3-1960 $0.30

Specifies apparatus to be used in test; reagents; test specimen, procedure.

Preparation of Extractive-Free Wood, Method for, ASTM D 1105-56; ASA O13.4-1960 $0.30

Applicable to all North American woods. Extractives in wood consist of materials that are soluble in neutral solvents and that are not a part of the wood surface. Describes apparatus to be used; reagents, sample; procedure of test.

Lignin in Wood, Method of Test for, ASTM D 1106-56; ASA O13.5-1960 $0.30

Principle of method; apparatus to be used; reagents; test specimen; procedure and calculation of results.

Alcohol-Benzene Solubility of Wood, Method of Test for, ASTM D 1107-56; ASA O13.6-1960 $0.30

Intended for determining alcohol-benzene soluble content of wood, which is a measure of the waxes and fats, resins and oils, plus tanins and certain other ether-insoluble components. Specifies apparatus to be used; reagent; procedure to follow and how to calculate and report results.

Ether Solubility of Wood, Method of Test for, ASTM D 1108-56; ASA O13.7-1960 $0.30

Intended for determining ether-soluble content of wood, which is a measure of the waxes, fats, resins, oils and similar materials. Specifies apparatus to be used, reagent; procedure to follow, and how to calculate and report results.

One-Percent Caustic Soda Solubility of Wood, Method of Test for, ASTM D 1109-56; ASA O13.8-1960 $0.30

Describes apparatus to be used; reagents; test specimens; procedure to follow and calculation and report of results.

Water Solubility of Wood, Methods of Test for, ASTM D 1110-56; ASA O13.9-1960 $0.30

Two methods are provided: cold water solubility and hot water solubility. Describes apparatus required; test specimen; procedure to follow and how to calculate and report results.

Methoxyl Groups in Wood and Related Materials, Method of Test for, ASTM D 1166-55T; ASA O13.10-1960 $0.30

Gives principle of method; apparatus to be employed in test; purity of reagents and water; moisture determination; procedure, calculation and report of results.

Sponsor: American Society for Testing Materials

In Process . . .

As of May 18, 1960

Standards Council—Gives final approval to American Standards; Board of Review—Acts for Standards Council; Standards Board—Approves standards to send to Board of Review or Standards Council.

ACOUSTICS, VIBRATION, AND MECHANICAL SHOCK

In Board of Review

Acoustical Terminology, S1.1- (Revision of Z24.1-1951)

Sponsor: Acoustical Society of America

Characteristics of Auxiliary Equipment for Shock and Vibration Measurements, Method for Specifying, S2.4-

Sponsors: Acoustical Society of America; American Society of Mechanical Engineers

Criteria for Background Noise in Audiometer Rooms, S3.1-

Monosyllabic Word Intelligibility, Method for Measurement, S3.2-

Sponsor: Acoustical Society of America

Calibration of Mechanically-Recorded Lateral Frequency Records (58 IRE 19.S1), S4.1-

Sponsor: Institute of Radio Engineers

BUILDING AND CONSTRUCTION

American Standard Approved

Reinforced Masonry, Building Code Requirements for, A41.2-1960

Sponsor: National Bureau of Standards

In Board of Review

Lime-Cement Stucco, Specifications for, A42.5-

Sponsors: American Society for Testing Materials; American Institute of Architects

Standard Submitted

Installation of Ceramic Tile with Dry-Set Portland Cement Mortar, Specifications for, A108.5-

Sponsor: Tile Council of America

Withdrawal Being Considered

Coal-Tar Pitch for Steep Built-Up Roofs, Specifications for, ASTM D 654-49; ASA A109.7-1955

Sponsor: American Society for Testing Materials

DRAWINGS, SYMBOLS AND ABBREVIATIONS

In Standards Board

American Standard Drafting Manual, Section 15—Electrical Diagrams, Y14.-15-

Sponsors: American Society of Mechanical Engineers; American Society for Engineering Education

Metallizing Symbols, Y32.12-

Sponsors: American Society of Mechanical Engineers; American Institute of Electrical Engineers

ELECTRIC AND ELECTRONIC

American Standard Approved

Varnished Cambric Insulated Cables, Specification for, IPCEA S-2-1946, ASA C8.13-1960 (Revision of C8.13-1948)

Sponsor: Electrical Standards Board

In Standards Board

Safety Rules for the Installation and Maintenance of Electric Supply and Communication Lines (Including Definitions and Grounding Rules), NBS Handbook H32; ASA C2.2- [Revision of C2.2-1941 (R1947)]

Sponsor: National Bureau of Standards

Weather-Resistant (Weatherproof) Wire and Cable (URC Type), C8.18- (Revision of C8.18-1948)

Sponsor: Electrical Standards Board

Electrical Power Insulators, Test Methods for, C29.1- (Revision of C29.1-1944)

Sponsor: Electrical Standards Board

GAS-BURNING APPLIANCES

In Standards Board

Addenda Z21.10.1a to American Standard Approval Requirements for Gas Water Heaters, Volume I, Z21.10.1-1959

Addenda Z21.13.3a to American Standard Approval Requirements for Central Heating Gas Appliances, Volume II, Gravity and Forced Air Central Furnaces, Z21.13.2-1958 and Addenda Z21.13.2a-1959

Addenda Z21.13.3a to American Standard Approval Requirements for Central Heating Gas Appliances, Volume III, Gravity and Fan Type Floor Furnaces, Z21.13.3-1959

Addenda Z21.22a to American Standard Listing Requirements for Relief Valves and Automatic Gas Shut-Off Devices for Hot Water Supply Systems, Z21.-22-1958

Sponsor: American Gas Association

MATERIALS HANDLING

American Standards Approved

57-Gallon Full-Removable-Head Universal Drum (UFC and CFC—Rule 40, NMFC—Rule 5), MH2.11-1960

30-Gallon Full-Removable-Head Universal Drum (UFC and DFC—Rule 40, NMFC—Rule 5), MH2.12-1960

30-Gallon Full-Removable-Head Universal Drum (ICC-17H), MH2.13-1960

16-Gallon Full-Removable-Head Universal Drum (UFC and CFC—Rule 40, NMFC—Rule 5), MH2.14-1960

Sponsor: Steel Shipping Container Institute

MECHANICAL

American Standards Approved

Instrument Precision Ball Bearings, Requirements for, B3.10-1960 (Revision of B3.10-1959)

Metal Balls, Specifications for, B3.12-1960

Sponsor: Anti-Friction Bearing Manufacturers Association

In Standards Board

Spindle Noses and Arbors for Milling Machines, B5.18- (Revision of B5.18-1953)

Sponsors: American Society of Tool Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

Standard Shapes and Sizes of Grinding Wheels, B74.2-

Sponsor: Grinding Wheel Institute

MEDICAL

American Standard Approved

Anesthetic Equipment: Endotracheal Tubes, Z79.1-1960

Sponsor: American Society of Anesthesiologists

MINING

American Standard Approved

Use of Wire Rope for Mines, Specifications for, M11.1-1960 (Revision of M11-1927)

Sponsors: Wire Rope Technical Board; American Mining Congress

PIPE AND FITTINGS

American Standards Approved

Pipe Threads (Except Dryseal), B2.1-1960 (Revision of B2.1-1945)

Sponsors: American Society of Mechanical Engineers; American Gas Association

Cast-Iron Pipe Flanges and Flanged Fittings, Class 125, B16.1--960 [Revision of B16.1-1948 (R1953)]

Cast-Iron Pipe Flanges and Flanged Fittings, Class 125, B16.1-1960 [Revision of B16b-1944 (R1953)]

Sponsors: American Society of Mechanical Engineers; Manufacturers Standardization Society of the Valve and Fittings Industry; Mechanical Contractors Association of America

In Board of Review

Pressure-Temperature Ratings for Types 304L and 316L Flange Series, B16.-5a- (Addendum to B16.5-1957, Steel Pipe Flanges and Flanged Fittings)

Ratings for Non-Ferrous Wrought Flanges B16.5b- (Addendum to B16.5-1957, Steel Pipe Flanges and Flanged Fittings)

Sponsors: American Society of Mechanical Engineers; Mechanical Contractors Association of America; Manufacturers Standardization Society of the Valve and Fittings Industry

In Standards Board

Dryseal Pipe Threads, B2.2- (Partial revision of B2.1-1945, Pipe Threads)

Sponsors: American Society of Mechanical Engineers; American Gas Association

Seamless Steel Boiler Tubes for High-Pressure Service, Specifications for, ASTM A 192-58T; ASA B36.14- (Revision of ASTM A 192-55T; ASA B36.14-1956)

Electric-Resistance-Welded Steel Boiler and Superheater Tubes for High-Pressure Service, Specifications for, ASTM A 226-58T; ASA B36.18- (Revision of ASTM A 226-55T; ASA B36.18-1956)

Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses, Specifications for, ASTM A 120-57T; ASA B36.20- (Revision of ASTM A 120-54; ASA B36.20-1958)

Copper-Brazed Steel Tubing, Specifications for, ASTM A 254-58; ASA B36.35- (Revision of ASTM A 254-55T; ASA B36.35-1956)

Seamless and Welded Ferritic Stainless Steel Tubing for General Service, Specifications for, ASTM A 268-58; ASA B36.36- (Revision of ASTM A 268-55; ASA B36.36-1956)

Seamless and Welded Austenitic Stainless Steel Sanitary Tubing, Specifications for, ASTM A 270-58; ASA B36.38- (Revision of ASTM A 270-55; ASA B36.38-1956)

Sponsor: American Society for Testing Materials; American Society of Mechanical Engineers

SAFETY

In Standards Board

Power Lawn Mowers, Safety Specifications for, B71.1-

Sponsor: Lawn Mower Institute

Safety Code for Aerial Passenger Tramways, B77.1-

Sponsors: Eastern Ski Area Operators Association; American Society of Mechanical Engineers

NEWS ABOUT AMERICAN STANDARDS PROJECTS

Thermocouples—

To aid in the manufacture and simplify the use of thermocouples and thermocouple extension wires, the establishment of an American Standards project on thermocouples was recommended by representatives of 16 national trade associations, technical societies, and industry at a recent general conference held under the auspices of the American Standards Association.

Thermocouples are employed to measure temperature. The extensive use of thermocouples in industry prompted the attendance at the ASA general conference of such divergent groups as: American Institute of Electrical Engineers; American Iron and Steel Institute; American Petroleum Institute; American Society of Mechanical Engineers; Institute of Radio Engineers; Association of Iron and Steel Engineers; National Electrical Manufacturers Association; Scientific Apparatus Makers of America; and the National Bureau of Standards.

The tentative scope for the proposed project is: "Requirements for temperature measurement thermocouples including, but not limited to, terminology, fabrication, procedures for ascertaining accuracy, limits of error, wire sizes, installation, color code for thermocouples and thermocouple extension wire, and temperature tables."

The specific points which make up the scope of the proposed project are standards which have been adopted by the Instrument Society of America and were combined in ISA document RP1.1-7, entitled "Recommended Practice Thermocouples and Thermocouple Extension Wires."

The conference also recommended the proposed project be initiated through ASA's sectional committee procedure. It was pointed out that, while the ISA document was rather complete, it contained some items which in their present form might not meet with the complete approval of all concerned parties. It was further stated that there were other types of thermocouples, such as chromel-constantan, which will eventually have to be considered. Under the sectional committee method, a responsible group is available at all times to consider any such revision to an existing standard.

The conference recommended that the Instrument Society of America be invited to serve as sponsor for the proposed project if it is approved by the ASA Standards Council.

Safety Standards for Compressor Systems, B19—

Sponsors: American Society of Mechanical Engineers; American Society of Safety Engineers

The third draft of a proposed American Standard Safety Standard for Compressor Systems, B19.1, is being circulated for comment by industry. Copies of the tentative draft may be obtained free of charge by writing George C. Finster, standards manager, The American Society of Mechanical Engineers, 29 West 39 Street, New York 18, N.Y. All requests for the draft should be made on letterhead.

This is a revision of a 1938 edition entitled Safety Code for Compressed Air Machinery and Equipment, which is not only out of date but has been out of print for some time.

Code for Pressure Piping, B31—

Sponsor: The American Society of Mechanical Engineers

Interpretations submitted by the sponsor.

From time to time certain actions of Sectional Committee B31 are published for the information of interested parties. While these do not constitute formal revision of the Code, they may be utilized in specifications, or otherwise, as representing the considered opinions of the committee.

Pending revision of the Code for Pressure Piping, B31.1-1955, the sectional committee has recommended that ASME, as sponsor, and ASA publish selected interpretations so that industry may take immediate advantage of corresponding proposed revisions. Recently a number of cases concerning piping in nuclear power plants have been approved for publication. These are identified as N-1, N-7, N-8, N-9, and N-10. Cases N-2 and N-6 are not ready for publication at this time, but are currently under review by the Advisory Committee on Nuclear Piping.

Cases N-1 and N-7 were published in the April issue, and Case N-8 was published in the May issue.

These cases are published as interim action of Sectional Committee B31 on the Code for Pressure Piping that will not constitute a part of the Code until formal action has been taken by ASME and by the American Standards Association on a revision of the Code.

CASE N-9

Centrifugally Cast Austenitic Steel Pipe for Nuclear Service

Inquiry: Under what conditions may centrifugally cast austenitic stainless steel pipe be used within the scope of Section 1 of the Code for Pressure Piping for nuclear service?

Reply: It is the opinion of the committee that the intent of the Code will be satisfied provided the following conditions are met:

(1) Chemistry and Mechanical Property Requirements:

(a) The chemistry and tensile requirements shall be as given in ASTM A 351. These shall be established from a sample ring cut from one end of each length of pipe, using the testing procedure given in ASTM Specification A 370.

(b) The bending properties shall be established as required by ASTM A 376, paragraphs 10 and 11.

(2) Finish: The inside and outside surfaces shall be finish machined. The material shall have a finish of 250 micro-inch rms or 25 micro-inch AA or better.

(3) Testing:

(a) Pressure Test: Each length of pipe shall be given a pressure test and shall show no leaks with the test pressure held for a period of 30 minutes per inch of wall thickness. The test pressure shall be at least 1.5 times the rated pressure of the pipe at

MAXIMUM ALLOWABLE STRESS VALUES IN TENSION (psi)

ASTM A351 grade:	CF8	CF8M	CF8C	CH20	CK20
Spec Min Tensile:	7,000	70,000	70,000	70,000	65,000
TEMPERATURE					
—20 to +100	17,500	17,500	17,500	17,500	16,250
200	15,700	16,900	17,000	16,100	15,300
300	14,250	16,500	15,600	15,150	14,900
400	13,100	16,300	14,200	14,600	14,600
500	12,200	15,900	13,000	14,550	14,550
600	11,700	15,350	12,200	14,450	14,450
650	11,500	15,000	11,900	14,400	14,400
700	11,300	14,700	11,700	14,350	14,350
750	11,100	14,350	11,600	14,300	14,300
800	10,900	14,000	11,500	14,150	14,150
850	10,650	13,500	11,350	13,900	13,900
900	10,400	13,000	11,200	13,500	13,500
950	10,100	12,350	11,100	12,500	12,500
1,000	9,850	11,700	11,000	10,500	11,000
1,050	9,600	10,600	10,900	8,500	9,750

NOTE: These stress values are based on a casting quality factor of 1.00.

room temperature, except that the stress developed at the test pressure shall not exceed 90 percent of the specified minimum yield strength based on the actual wall thickness.

(b) Surface Inspection—Fluid Penetrant: In addition to visual inspection, all surfaces of each length shall be inspected by the fluid penetrant method. The following standards of acceptance shall be met:

All linear discontinuities and aligned penetrant indications revealed by the test shall be removed. Aligned penetrant indications are those in which the average of the center-to-center distances between any one indication and the two adjacent indications in any straight line is less than 3/16 of an inch.

All other discontinuities revealed on the surface need not be removed unless the discontinuities are also revealed by radiography, in which case the pertinent radiographic specification shall apply.

(c) Radiography: Each length of pipe shall be completely radiographed in accordance with ASTM E 94 and shall meet the requirements of ASTM E 71 for Class 2 quality castings.

(4) Repair of Defects: Defects disclosed by inspection and testing may be repaired by welding under the following conditions:

(a) The defect shall be removed and the surface of the cavity rendered clean.

(b) Repair welding shall be done using procedures and operators that have been qualified in accordance with the requirements of ASTM A 376.

(c) All repair welds shall be examined by the same procedures and to the same standards as the original cast material.

(d) If the material had been heat-treated before making the repair weld, the length shall be re-heat-treated.

(5) Heat Treatment: Heat treatment shall consist of 1950 F minimum metal temperature and the material shall be cooled in air or liquid medium at a rapid rate.

(6) Requirements After Hot-Forming Operations: Pipe sections that have been subjected to hot-form operations such as bending, swaging, forging, van-stoning, and similar forming operations shall be re-heat-treated in accordance with paragraph 5, and fluid penetrant-tested.

(7) Records:

(a) Test Reports: Certified test reports shall give the results of the chemical and tensile properties, and shall specifically indicate that each of the other test requirements in this case have been met. In the event that the inspector did not witness the removal and repair welding of any defects, the test report shall contain a statement as to the number, approximate extent, and location of such repairs.

(b) All radiographs of original material and repaired areas shall be kept for a period of three years and shall be available to the inspector at all times.

(8) Retests: If the results of any chemical or mechanical tests do not conform to the requirements, retests shall be made on additional ring samples of double the original number, each of which shall conform to the requirements as specified.

(9) Special Requirements: It shall be the responsibility of the designer to require any or all of the following where service conditions or welding requirements warrant, and when so specified, they become a requirement of this case.

(a) Where gaseous products of nuclear fission are anticipated, mass spectrometer or other gaseous leakage tests shall be specified.

(b) Where cold-forming or hot-forming are to be considered, ductility shall be compatible with the type of forming.

(10) Allowable Stress Values: The maximum allowable stress for use under this case shall be as shown in the table.

NUCLEAR STANDARDS

The six sectional committees (N2-N7) under the jurisdiction of the Nuclear Standards Board are progressing rapidly with their work on standards, and several of them are contributing substantially to the international work being done by ISO/TC 85, Nuclear Energy. Early this year, the first American Standard concerned with nuclear energy to be developed by a sectional committee was approved and published. This is American Standard N2.1-1960, Radiation Symbol.

Recently, the Nuclear Standards Board recommended that all the work in this field under ASA procedure be brought together under a single jurisdiction. The recommendation specifically suggested that the American Standard Safety Code for the Industrial Use of X-Rays and Radiation, Z54, now under the jurisdiction of the Safety Standards Board, be transferred to the Nuclear Standards Board.

Recent reports show the following current activities of the various committees:

General and Administrative Standards for Nuclear Energy, N2—

Sponsor: Atomic Industrial Forum

A fifth draft on radiation exposure records has been completed by subcommittee N2-2. Other N2 subcommittees are working on qualifications

for nuclear professionals, on model atomic energy legislation, and on a revision of American Standard N1.1, Nuclear Terminology.

The N2 committee expects that it may soon organize an additional subcommittee on radiological services to deal with test procedures for monitoring methods, calibration procedures, and similar problems.

As the group presenting the U.S. viewpoint in work with Subcommittee 1 of the International Organization for Standardization's Committee TC 85 on Nuclear Energy, Subcommittee N2-4 had completed two documents on terminology for presentation at the meeting of ISO/TC85/SC 1 at Geneva in late May and early June.

Nuclear Instrumentation, N3—

Sponsor: Institute of Radio Engineers

The N3 committee is collecting material for possible standardization. Eight standards prepared by the Electronic Industries Association may be circulated for consideration by the committee, it is reported. This committee is responsible for presenting the U.S. viewpoint at a meeting of the International Electrotechnical Commission's Technical Committee 45 at New Delhi in November.

Electric Apparatus and Systems for the Nuclear Field, N4—

Sponsors: American Institute of Electrical Engineers; Electric Light and Power Group; National Electrical Manufacturers Association

A proposed standard on canned motor pumps being prepared by the National Electrical Manufacturers Association may soon be submitted to the N4 committee, it is reported.

Nuclear Fuel Cycle Engineering, N5—

Sponsor: American Institute of Chemical Engineers

A new scope has been approved for this committee, as follows: "Standards, specifications, codes, tolerances, and methods of testing on the engineering aspects of the nuclear fuel cycle, including: the refining, processing, separation, purification, treatment, packaging, handling, and disposal of fuels and allied materials such as radioisotopes, industrial chemicals, pharmaceuticals with isotope tracers, and radioactive wastes (gases, liquids, and solids); and for processing of foods and other materials; and the application and use of chemically resistant coatings and the cleaning of contaminated equipment and facilities."

Subcommittee N5-4 on radioisotopes arranged for five representatives to attend the meeting of Subcommittee 4 of ISO/TC 85 at Geneva, May 30 and 31. The subcommittee acts as the secretariat for the working group for development of international recommendations on unsealed sources of radioisotopes.

Subcommittee N5-1 has already distributed for comment a proposal on ceramic grade UO_2 destined for reactor fuels. F. W. Davis, Babcock & Wilcox Company, has been named vice-chairman.

Subcommittee N5-2 is planning to make use of the 1959 hearings on radioactive waste disposal held by the Congressional Joint Committee on Atomic Energy.

Subcommittee N5-5 has prepared the first draft of a guide on packaging and transportation of source and special nuclear materials before irradiation. The subcommittee has also prepared a draft of a proposed standard for UF_6 cylinders, and reports progress on design requirements for shipping solid fuels, and on transportation of irradiated fuels and materials.

Reactor Safety Standards, N6—

Sponsors: American Nuclear Society; American Society of Mechanical Engineers

A third draft on site selection criteria has been distributed by Subcommittee N6-1, which is also preparing a detailed mathematical procedure for evaluating the safety of a reactor site.

Subcommittee N6-2 has distributed a proposed standard on reactor containment to all members of the N6 committee for comment.[1]

Subcommittee N6-4 has issued its second draft of proposed safety standards for reactor dynamics characteristics and control requirements.

E. F. Wasem, *Combustion Engineering*, has become chairman of Subcommittee N6-5 on safety in instrumentation and execution of control requirements.

Subcommittee N6-6 deals with operation, operator qualifications, inspection, maintenance and records. C. F. Jones, Shippingport Atomic Power Station, is chairman. The standard being considered by this group will eventually contain 15 sections.

A proposed safety code for fissionable materials, issued by subcommittee N6-8, is now being circulated for comment by The American Society of Mechanical Engineers. Copies can be obtained from George C. Finster, standards manager, American Society of Mechanical Engineers, 29 West 39 Street, New York 18. All requests for the document should be on letterhead.

Sectional Committee N6 has arranged for a five-man delegation to attend the meeting of Subcommittee 3 of ISO/TC 85 in Geneva. The delegates will present documents on site selection criteria, dynamics characteristics as related to reactor coolant, operator qualification, and containment as well as the proposed code prepared by Subcommittee N6-8 on casual criticality.

Radiation Protection, N7—

Sponsors: Atomic Industrial Forum; National Safety Council

A proposed standard for uranium mines and concentrators, completed by Subcommittee 1, is being considered by the N7 committee. It is planned to send the proposed standard to the sponsors for submittal to ASA but with the recommendation that work be started immediately on a revision. New information developed by other groups will be taken into consideration in the revision. However, the committee believes the uranium miners and concentrators need the material in the standard now, without waiting for the information and material still under development.

Work is going forward in Subcommittee 3 on a draft standard on isotopic separations.

The fourth draft of a standard developed by Subcommittee N7-4 will be submitted to the N7 sectional committee soon. This proposed standard contains appendixes that will be helpful to any health physicist in charge of radiation protection at a fuel fabrication plant.

At its meeting last fall, the N7-5 subcommittee visited the Shippingport reactor and the following day reviewed completed sections of a proposed standard on reactors. The material is being edited before the draft is submitted to the N7 sectional committee.

[1]The Proposed Safety Code for Design, Fabrication, and Maintenance of Containment Structures for Stationary Atomic Power Reactors is now being circulated for comment. Copies may be obtained by writing George C. Finster, standards manager, The American Society of Mechanical Engineers, 29 West 39 Street, New York 18, N. Y. Requests for copies should be on letterhead.

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